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A PRELIMINARY LIST OF THE SUMMER BIRDS OF OF FALL RIVER COUNTY, SOUTHWESTERN SOUTH DAKOTA.[1]

BY STEPHEN SARGENT VISHER.

Fall River County is the most southwesterly county in Souht Dakota. The Black Hills extend into the north central portion. The rest of the county is a plain, much eroded by the Cheyenne River, in the middle of the county, and by its tributaries. From west to east the larger tributaries are: from the north, Fall River and Beaver Creek, and from the south, Hat Creek and Horsehead Creek. Indian Creek, a large tributary of Hat Creek, is on the southern border of the western half of the county. Pierre (Cretaceous) shale forms the subsoil of most of the county. This "gumbo" is unproductive in a dry season and consequently in the exceptionally dry summer of 1911 most of the area was quite barren in aspect. The valleys of the largest streams are partially filled with groves of cottonwood, ash, elm, etc., and upon the foothills there are considerable growths of Bull Pine. The larger portion of the county is quite free from the signs of civilization and fences are absent for miles in a stretch. The towns are Hot Springs, in the north central part; Edgemont, in the west central; Ardmore on Hat Creek near the Nebraska line; Oelrich in the east central, on Horseshoe Creek.

[1] Published by permission of the State Geologist.

A field party of the South Dakota State Survey spent from July 22nd to August 8th, 1911, in this county. We entered along the Cheyenne River from the northeast. The wagon passed through Hot Springs, Minnekahta, and Edgemont, and then proceeded to the extreme southwestern corner. From there it swung east along Indian Creek to Ardmore, north along Hat Creek almost to the Cheyenne River, thence east to Oelrichs and southeast into the Pine Ridge Reservation. By means of the saddle horses most of the county was visited. The following list of seventy-six species of birds were observed. It probably includes the commoner summer birds of the area. Forty odd species were collected for the state museum:

THE LIST.

Hydrochelidon nigra surinamensis. Black Tern.—Seen migrating along Hat Creek August 2nd.

Querquedula discors. Blue-winged Teal.—An abundant migrant and a rare breeded. Broods seen in several parts of the county; southwest of Edgemont, July 28th; Indian Creek, July 31st; and west of Oelrichs August 3rd.

Dafila acuta. Pintail.—A brood was seen along Indian Creek July 31st. Said to be abundant during migrations.

Erismatura jamaicensis. Ruddy Duck.—Several were seen on a pond near Ardmore, August 1st.

Nycticorax nævius. Black-crowned Night Heron.—Seen several times, along the larger creeks, Indian, Hat, and Horsehead.

Totanus flavipes. Yellow-legs. Noted July 23rd, 27th, 30th, August 2nd and 6th, at rather widely separated localities.

Helodromas s. solitarius. Solitary Sandpiper.—An abundant migrant.

Bartramia longicauda. Upland Plover.—A tolerably common summer resident, at least we saw it regularly. Young unable to fly were seen.

Actitis macularia. Spotted Sandpiper.—Common during our stay, especially along the streams in the Black hills.

Oxyechus vociferus. Killdeer.—A very abundant summer resident. By far the most numerous water bird. A brood was raised near almost every body of water in the county.

Pediœcetes c. campestris. Prairie Sharp-tailed Grouse.—This grouse was found to be quite numerous in the park-like forest of the foothills, and fairly plentiful along the flood plains of the creeks on the plains.

Zenaidura macroura carolinensis. Mourning Dove.—This is decidedly the most conspicuous summer bird along the creeks whose valleys are grown up with cottonwoods.

Cathartes aura septentrionalis. Turkey Vulture.—An abundant summer resident; seen several times each day.

Buteo borealis calurus. Western Red-tailed Hawk.—A tolerably common breeder, nesting generally along the streams.

Buteo b. kreideri. Kreider's Hawk.—Two broods were found late in July in solitary cottonwoods in coulies in the "gumbo country" of the southwestern part of thecounty.

Buteo swainsoni. Swainson's Hawk.—Very frequently met with throughout our journey through Fall River County. Apparently it nests regularly here.

Archibuteo ferrugineus. Ferruginous Rough-leg.—Seen several times in early August (August 1st, near Ardmore, August 2nd, Ash Creek, August 4th, Oelrichs, August 6th, Slim Butte).

Falco mexicanus. Prairie Falcon.—A common resident; met with most frequently in the rougher country, along the Cheyenne River and some of its tributaries.

Falco columbarius richardsoni. Richardson's Pigeon Hawk.—Seen July 22nd, 23rd, 26th, and 31st.

Falco s. sparverius. Sparrow Hawk.—The hawk most frequently seen.

Otus asio. Screech Owl.—Several were seen in the wooded valleys of Fall River, Hat Creek, and Horsehead Creek.

Bubo virginianus pallescens. Western Horned Owl.—Far from rare. Several were seen, especially near "cut bank" bluffs along the Cheyenne, Indian, and Horsehead Creeks.

Ceryle alcyon. Belted Kingfisher.—Frequent on all permanent streams.

Dryobates v. villosus. Hairy Woodpecker.—A rare breeder in larger groves of cottonwood.

Dryobates pubescens nelsoni. Northern Downy Woodpecker.

Melanerpes erythrocephalus. Red-headed Woodpecker.—Both the downy and red-head are common in the deciduous groves.

Colaptes auratus luteus. Northern Flicker.

Colaptes c. collaris. Red-shafted Flicker.—The red-shafted is far more numerous in Fall River County than is the eastern species, but during our visit hybrids were apparently more abundant than both the others taken together.

Chordeiles virginianus henryi. Western Nighthawk.—Especially common last summer in the foothills country. Seen or heard every night while we were in the foothills (July 23-28).

Æronautes melanoleucus. White-throated Swift.—An abundant

breeder about high cliffs. Large colonies nest in Hot Brook Canyon northwest from Hot Springs.

Tyrannus tyrannus. Kingbird.—An abundant nester in deciduous trees.

Tyrannus verticalis. Arkansas Kingbird.—Frequently met with during the summer. Nests were seen in each of the four quarters of the county.

Sayornis sayus. Say's Phœbe.—Especially in the rougher areas this is a common flycatcher. Nested in a deserted barn near Oelrichs.

Myiochanes v. richardsoni. Western Wood Pewee.—An abundant breeder along the wooded valleys.

Otocoris alpestris leucolæma. Desert Horned Lark.—One of the half dozen abundant species of the plains.

Pica pica hudsonia. Magpie.—Numerous wherever there are trees. Said to be even more abundant in winter than in summer.

Corvus b. brachyrhynchos. Crow.—A tolerably common resident.

Cyanocephalus cyanocephalus. Pinion Jay.—An abundant breeder about Hot Springs and elsewhere in the foothills. Locally called "Camp Robber," "Butcher house bird," "Blue Crow," etc.

Molothrus a. ater. Cowbird.—Quite numerous.

Xanthocephalus xanthocephalus. Yellow-headed Black-bird.—Seen several times in July, but we saw no nesting sites in this county.

Agelaius phœniceus fortis. Thick- billed Red-wing.—A common summer resident near water.

Sturnella neglecta. Western Meadowlark.—One of the most numerous of the birds of this district.

Icterus bullocki. Bullock's Oriole.—An abundant breeder along the streams, especially near the Black Hills.

Euphagus cyanocephalus. Brewer's Blackbird.—Numerous during the summer; nests.

Quiscalus quiscula æneus. Bronzed Grackle.—Nests fairly plentiful about Hot Springs.

Loxia curvirostra minor. Crossbill.—A tolerably common breeder about the pines on the foothills of the northern part of the county.

Astragalinus t. tristis. Goldfinch.—A common summer resident.

Spinus pinus. Pine Siskin.—A large flock was seen in the pines near Edgemont.

Calcarius ornatus. Chestnut-collared Longspur.—Tolerably common on the plains when we traversed them.

Chondestes grammacus strigatus. Western Lark Sparrow.—An abundant nester except in the most barren parts. Three nests were found.

Spizella pusilla arizona. Western Chipping Sparrow.—Quite numerous in summer. Seen along Fall River, Beaver and Black-tail Creeks.

Pipilo maculatus arcticus. Arctic Towhee.—Frequently met with in groves along the streams. Young observed early in August along Horsehead Creek.

Zamelodia melanocephala. Black-headed Grosbeak. — Several broods were seen in the more mesophytic groves.

Guiraca cærulea lazula. Western Blue Grosbeak.—Certainly a common summer resident. Broods were seen in practically all the favorable localities visited.

Passerina amœna. Lazuli Bunting.—We found a brood on July 24th, near Hot Springs.

Calomospiza melanocorys. Lark Bunting.—A conspicuous bird on the plains.

Piranga ludoviciana. Western Tanager.—Quite numerous in the pines of the foothill country — seen in four or five localities, especially between Hot Springs and Minnekahta.

Petrochelidon lunifrons. Cliff Swallow.—Large colonies were found nesting on vertical cliffs along the streams.

Hirundo erythrogastra. Barn Swallow.—A common summer occupant of sheds.

Tachycineta thalassina lepida. Northern Violet-green Swallow.—An abundant breeder about cliffs. Two nests were examined in crevices in rock near Indian Creek.

Riparia riparia. Bank Swallow.—Four or five colonies were noted, two on Indian Creek, and two on the Cheyenne River.

Lanius ludovicianus excubitorides. White-rumped Shrike.—Nests abundantly in the cottonwoods along the Cheyenne River and other large streams.

Vireosylva olivacea. Red-eyed Vireo.—Abundant late in July in the wooded valleys.

Vireosylva gilva swainsoni. Western Warbling Verio.—Scarcely a rare breeder along the canyons in the foothills.

Dendroica æ. æstiva. Yellow Warbler.—Abundant in deciduous groves and thickets along the creeks.

Geothlyptes trichas occidentalis. Western Yellow-throat.—Common on Horsehead Creek, near Oelrichs. Birds in juvenile plumage were seen there.

Icteria virens longicauda. Long-tailed Chat.—A common summer resident along the wooded stream valleys.

Mimus polyglottos leucopterus. Western Mockingbird.—A fledgling barely able to fly was collected July 27th, near Minnekahta.

As far as I know this is the second specimen of Mockingbird collected in South Dakota. Hayden collected one in the Black Hills in 1860.

Dumetella carolinensis. Catbird.—Rare. A brood seen in the eastern part of the county near Oelrichs.

Toxostoma rufum. Brown Thrasher.—Quite abundant in the wooded valleys. Nests.

Salpinctes o. obsoletus. Rock Wren.—Nests plentifully about rocks.

Sitta carolinensis aculcata. Slender-billed Nuthatch.—Common in the pine-clad portions of the county.

Penthestes atricapillus septentionalis. Long-tailed Chickadee.—An abundant resident.

Planesticus m. migratorius. Robin.—Rare, in Hot Springs.

Sialia currucoides. Mountain Bluebird.—An abundant breeder.

University of South Dakota, Vermilion, S. D.

A STUDY OF THE AVIFAUNA OF THE LAKE ERIE ISLANDS.

(With Particular Reference to the Migration Phenomena.)

BY LYNDS JONES.

The above title is chosen because the author has only just completed in the pages of the Bulletin a study of the Birds of Cedar Point and vicinity, and there has also recently appeared in these pages a study of the Birds of Point Pelee by Taverner and Swales. It will be impossible to confine this study to islands, but references to the adjacent mainland on both sides of Lake Erie must be expected. Therefore, the following summary of work done will be found to include all visitations to Cedar Point on the Ohio shore, and Point Pelee on the Canada shore. This enumeration will indicate the fragmentary nature of the work. The paper must, therefore, be regarded as a report of progress made in the hope that it will stimulate someone who is favorably situated to carry the work to a successful issue.

ISLAND VISITATIONS.

May 28, 1894.—Kelley's and Green. One-day Geology excursion.

May 27, 1901.—Kelley's and Put-in-Bay. One-day Geology excursion.

August 5 to 9, 1901.—Middle Bass, Sugar, North Bass, Hen, Big Chicken, Little Chicken, Chick, North Harbor, East Sister. Two men and a boy.

August 24 to 27, 1904.—Middle Bass, Sugar, Big Chicken, North Harbor, East Sister. Three men.

August 26 to September 2, 1905.—Middle Bass, Sugar, Big Chicken, Little Chicken, North Harbor, East Sister, Pelee. Two men.

July 28, 1908.—Pelee, Big Chicken, North Harbor. One-day class excursion.

August 17 to 21, 1908.—Kelley's, Put-in-Bay, Middle, Pelee, Big Chicken, Little Chicken, North Harbor, East Sister, Rattle. Four men.

July 16 to September 7, 1910.—Pelee, with side trips to Big Chicken, Little Chicken, North Harbor, Middle, Kelley's. Class of eleven students.

August 21 to 22, 1911.—Pelee. Three men; part of a summer's work.

August 22 to 23.—Kelley's. Five men; part of a summer's work.

The summer's work of which the last two records form a part, was the July 28 to August 21, 1911, Point Pelee class studies.

It seems worth while to give in this connection a complete list of the Cedar Point visitations for the purpose of indicating supplementary work there.

CEDAR POINT VISITATIONS.

1901.

August 5, August 9.—Each a part of one day.

1902.

July 11-12.—A canoe trip to locate breeding birds in the marshes.

1903.

April 21.—A canoe trip into the marshes for duck. June 26, sand spit.

1904.

June 17.—Sand spit.

1905.

July 6-7.—Canoe trip into the marshes for breeding birds.

1906.

October 15, 22, 27, 29; November 5, 12, 19, 26; December 17.—For migrations.

1907.

January 7, February 18, March 18, 25, 30; April 8, 15, 29; May 5-6, 12-13, 17, 19-20; July 1 to August 3, for summer work. September 13, 23, 30; October 7, 21; November 4, 18; December 27—Studies of the Migrations. g

1908.

January 6, 20; March 2, 9, 16, 23, 27, 30; April 2, 3, 20, 27; May 4, 11, 15-18; June 1, 22 to July 31, for summer work. August 1; November 16.—For studies of the migrations.

1909.

February 8, March 15, April 26, May 13-14, 16-17, 22; July 26, September 18, October 18.

1910.

February 5, May 20; September 7-10.—The last class work.

1911.

May 8, August 23 to 31.—Class work. October 16.

ISLAND VISITATIONS.

Kelley's, May 28, 1894.—This was a one-day trip with a class in Glacial Geology, and only two hours were spent on this island in the middle of the day. A landing was also made on Green Island, but no birds but Robins were seen there. No birds worthy of space were seen on Kelley's.

Kelley's, May 27, 1901.—This was another Geology trip. While it was of longer duration, it was not notable from an ornithological standpoint. On this trip a landing was made on Put-in-bay, but there was neither time nor opportunity to study the birds.

August 5 and 6, 1901, were spent on Middle and North Bass, August 7 and 8 were spent rowing from North Bass to Big Chicken, Chick, and Little Chicken, Hen, North Harbor, and East Sister, and back again to North Bass. The night of the 7th was spent on North Harbor, and another landing made on Big Chicken on the way home on the 8th. A part of the 9th was spent on Sugar and on Middle Bass, and a close and careful study of the birds of the lagoon on Middle Bass made on that day. The writer was accompanied on this trip by Rev. W. L. Dawson, and the author's eight-year-old son. Since the birds seen on this trip have never been pub-

lished in an ornithological magazine it seems worth while to give the list here, with brief annotations.

Middle Bass Island, August 5, 6, and 9, 1901.—The late afternoon of the 5th and early morning of the 6th, and the latter half of the forenoon of the 9th were spent on this island. Of course the night of the 5th was spent on this island. All of the birds enumerated were common unless otherwise stated.

Common Tern, Bittern, 1; Great Blue Heron, 6; Green Heron, King Rail, 9; Pectoral Sandpiper, Least Sandpiper, Semipalmated Sandpiper, Yellow-legs, Solitary Sandpiper, Spotted Sandpiper, Killdeer, Semipalmated Plover, Mourning Dove, Bald Eagle, 2; Yellow-billed Cuckoo, Belted Kingfisher, Northern Flicker, Chimney Swift, Ruby-throated Hummingbird, Kingbird, Wood Pewee, Blue Jay, Redwinged Blackbird, Orchard Oriole, Baltimore Oriole, Bronzed Grackle, Goldfinch, Chipping Sparrow, Field Sparrow, Song Sparrow, Towhee, Indigo Bunting, Purple Martin, Barn Swallow, Tree Swallow, Bank Swallow, Cedar Waxwing, Red-eyed Vireo, Warbling Vireo, Yellow Warbler, Redstart, Catbird, Brown Thrasher, Robin.

The only birds worthy of particular note in this list are the sandpipers. These were found feeding at the lagoon, the water of which was so low that extensive mud flats around the whole circumference furnished ideal feeding conditions. We were able to creep up to the edge of the vegetation and obtain views of the birds at a range of a few feet as they fed.

North Bass Island, August 6, 7, and 8, 1901.—We landed on this island about ten o'clock in the morning of the 6th, spent the night there and left it shortly after sunrise. We reached it again at twilight on the 8th, and left about 7 o'clock on the morning of the 9th. Thus most of one day, two mornings and two nights, were spent here. The birds seen were Common Tern, Spotted Sandpiper, two Bald Eagles at their nest spooning, Yellow-billed Cuckoo, Belted Kingfisher, Downy Woodpecker, Red-headed Woodpecker, Northern Flicker, Chimney Swift, Kingbird, Phœbe, Wood Pewee,

Blue Jay, Cowbird, Orchard Oriole, Baltimore Oriole, Bronzed Grackle, Field Sparrow, Song Sparrow, Indigo Bunting, Purple Martin, Tree Swallow, Bank Swallow, Cedar Waxwing, Red-eyed Vireo, Warbling Vireo, Yellow Warbler, Redstart, Catbird, Brown Thrasher, Carolina Wren, Robin. The only bird of special interest found here was the Carolina Wren. One would suppose that an island of such diversified topography would have furnished a much larger list of birds. There were few birds in the open fields, and even the woods were disappointing.

Big Chicken Island, August 7 and 8, 1901.—We landed before 7 o'clock in the morning, and spent about three hours counting the nests, which were still occupied by either eggs or young birds, and unoccupied nests, in the effort to make a fair estimate of the birds which were flying all about and above us. The count resulted in placing the number at about 3000. Among these there were many Black Terns, mostly in the transition plumage. Of course the nesting birds were without exception Common Terns. The only birds seen here were the Common and Black Terns, Spotted Sandpipers, and a roving flock of Bronzed Grackles. There was pretty good evidence that the Sandpipers were nesting. Big Chicken is a mound of rounded limestone rocks lying upon a limestone ledge, surrounded with scattering granite boulders, also rounded. There is a small frame shack or shanty, two trees about ten inches in diameter, and a clump of white willows, all occupying the middle of the island. The top is also thickly grown with wild gourd vines and some Polygonum weeds. The terns nest everywhere above high water mark.

Chick Island, August 7, 1901.—At normal water level this island is scarcely more than a reef, with no vegetation except the algæ, which cling to the rocks. On the occasion of our visit there was a dense mass of Polygonum growing to the height of three feet occupying the center of the exposed rock some twenty feet wide by two hundred long. Here the Common Terns were nesting among these weeds and on the abundant drift wood which flanked the weeds on the south-

westerly exposure. About twenty Herring Gulls were perched on granite boulders which projected above the water, or stood at the edge of the water along the margin of the island. Two Black Ducks made off from the island as we approached it. Spotted Sandpipers were the only other birds noted here. This rock is known on the Government charts as Big Chicken Reef or Shoal. But at the time of our visit it clearly deserved a name which would be distinctive. Since it was the smallest of the brood it might appropriately be considered "The Chick."

Little Chicken Island, August 7, 1901.—Chick lies about half a mile north of Big Chicken, and Little Chicken about a mile east of Chick. In general contour it closely resembles Chick, but lies much higher out of the water, so that a group of white willows has managed to grow to a height of twenty feet, clinging to the north edge. The center of this long rock is thickly strewn with drift, the drift completely surrounded with a rank growth of Polygonum. We spent about two hours on this bit of an island, and the count of nests made the estimate of 1500 birds seem conservative. Here, as at the other two islands, Black Terns mingled freely with the Common. There were no Herring Gulls here, but two Black Ducks flew away as we approached, probably the same two which left Chick upon our approach, since they flew back there. Spotted Sandpipers were the only other birds seen here.

Hen Island, August 7, 1901.—We ate our dinner on this island, spending about three hours on it. Unlike the Chicken Islands, the "Old Hen" stands up out of the water with perpendicular faces everywhere but at the small landing place, at the south-east corner. It has been occupied by a club house for many years, yet it is covered with trees, mostly hackberry. Only the center is cleared, and here peach trees have been set out, and there is an attempt at a small garden patch. We understood that it is occupied every summer, which means that the Common Terns have had to vacate. It is said that they nested on this island in great numbers before the club

house was built. Common Terns were flying about, Spotted Sandpipers teetered on the rocks just off shore, and in the trees we found Northern Flickers, Kingbirds, Wood Pewees, Red-winged Blackbirds, Bronzed Grackles, Goldfinches, Song Sparrows, Purple Martins, Red-eyed Vireos, and House Wrens, while Bank Swallows were flying about in considerable numbers. The only notable bird here was a three-legged chicken, which we were obliged to admire.

North Harbor Island, August 7 and 8, 1901.—We reached this island just at nightfall, and went into camp. It is like the Old Hen in standing up out of the water, but is about half as high, with a gravelly beach at its south end. Great glacial grooves mark where the ice scoured it down in crossing it at nearly right angles. It is about five rods wide by 125 long, extending in a northerly and southerly direction. Nearly its whole surface is covered with trees and bushes, and the usual grasses and other annuals cover the ground under trees and bushes. The ground is also covered with snails (*Helix albolabris ?*), and the dead shells occur in great numbers in the humus. We saw Purple Martins coming toward the island in considerable numbers, and they finally settled for the night in the large tree which marks the south end of the island. There were enough of them to fill the tree. As we prepared for the night we were surprised to see the Common Terns settling among the trees, alighting on the branches, where they apparently remained roosting all night. Their nests were everywhere about the island, except in the densest undergrowth. A count of the nests was impossible, but there seemed to be fully as many birds about as at Big Chicken. The birds noted were Common Tern, Black Tern, Great Blue Heron, Spotted Sandpiper, Kingbird, Wood Pewee, Red-winged Blackbird, Bronzed Grackle, Goldfinch, Purple Martin, Bank Swallow, Cedar Waxwing, Red-eyed Vireo, Carolina Wren singing. The Wren was a great surprise. We left the island to visit East Sister, in the middle of the day, and returned to pick up the camp equipment. We finally left the island about 3 o'clock p. m.

East Sister Island, August 8, 1901.—As indicated above, the middle of the day was spent on this rather large island. It is evidently made of lake drift which has been pushed up on a limestone reef of considerable extent. A low interior is bordered all along the southwestern half by a ridge of limestone rocks, which have been worn round by the waves. The northeastern end is a level tract, with a house and out buildings, and an orchard of some two acres. Otherwise the island is overgrown with trees and bushes, the lower parts being filled with marshy growths. The birds noted were: Common Tern, Great Blue Heron, Spotted Sandpiper, Marsh Hawk, Kingbird, Wood Pewee, Crow, Red-winged Blackbird, Bronzed Grackle, Song Sparrow, Cardinal, Indigo Bunting, Purple Martin, Barn Swallow, Bank Swallow, Cedar Waxwing, Red-eyed Vireo, Redstart, Carolina Wren, and Robin. The Cardinal and Carolina Wren were unexpected, even after the occurrence of the latter on North Harbor. The occurrence of these birds so far north indicates their tendency to extend their range wherever conditions are at all favorable.

Sugar Island, August 9, 1901.—A short stop was made at the western end of this island on the return from North Bass to Middle Bass. This small island is somewhat like East Sister, but is rather higher, and more rock bound. It was formerly used as a summer resort by one family, and was mostly planted for a vineyard. The house and barn still stand, and the neglected grape vines still mark the place of their setting. Several pear trees have also been set out. The west third of this island is grown to natural woods, and a fringe of trees border it. Some of the trees are more than a foot in diameter.

The birds seen follow: Common Tern, Spotted Sandpiper, Killdeer, Yellow-billed Cuckoo, Belted Kingfisher, Red-headed Woodpecker, Kingbird, Wood Pewee, Blue Jay, Crow, Red-winged Blackbird, Baltimore Oriole, Bronzed Grackle, Goldfinch, Song Sparrow, Bank Swallow, Red-eyed Vireo, Brown Thrasher, Robin.

August 24 to 27, 1904.—This was a sailing cruising trip

among the islands, during which visits were made to Middle Bass, Sugar, Big Chicken, North Harbor, East Sister, in company with two friends who were not ornithologists. Conditions had not changed on any of the islands visited. The Carolina Wren was again found on North Harbor and the Cardinal on East Sister, indicating that they had established permanent quarters there. At the lagoon on Middle Bass, in which the water reached well up on the bordering bushes, and therefore no mud flats occurred, the Pied-billed Grebe, Coot, Sora, Florida Gallinule, Least Bittern, and Louisiana Water-Thrush were added to the 1901 list. Nothing else worthy of mention was learned on this trip.

August 26 to September 2, 1905.—This was another sailing cruise, but was undertaken with the birds definitely in mind. The author was accompanied by Maynard Taylor. The start was made from Vermilion at 5:00 p. m., August 26, and we ran in to Cedar Point about 9:00 p. m., where we slept on the beach. After an early morning study of the birds we left at 8:00 a. m., reaching Sugar and Middle Bass at 3:00 p. m. A visit was paid to Big Chicken, North Harbor, and East Sister on the 28th, Pelee Island from 10:00 a. m. on the 29th to 1:30 p. m. on September 1st.

Middle Island from 2:30 to 2:50 p. m., September 1st.—The late afternoon of the 1st and the morning of the 2nd were spent on Kelley's Island. A thunder squall in the early morning drove us back from the east end of the island, where we had made a start for home, and made necessary a return trip around the west end and south side of the island, where we noted a few small birds crossing the channel to Marblehead, as we sagged along before a mere breath of air from the south-west.

No previous list of the birds of Pelee Island seems to have been made public, hence it may be worth while to print here the birds recorded during this brief reconnoisance. Fishing Point was pretty well looked over and a brief visit was also made to the east side of the island about a mile north of Saw-Mill Point.

Herring Gull, Common and Black Tern, were in considerable numbers on the sand spit. There were five Black Ducks in the swamp. One Least Bittern and one Green Heron were also seen in the swamp. Florida Gallinules seemed to possess the swamp, there were so many of them. Along the east beach and on the sand spit there were numbers of Spotted and Semipalmated Sandpipers, Semipalmated and Piping Plovers, two Greater Yellow-legs on the 30th, and Killdeer. Mourning Doves were numerous and flying up and down the point in the morning. One Osprey and two Bald Eagles came out over the point on the 29th. Screech Owls quavered in the cedars at night. Several Belted Kingfishers divided their time between the swamp and lake. One Yellow-billed Cuckoo was seen near the swamp. Many Red-headed and Downy and one Red-bellied Woodpecker lived about the swamp, and Flickers were found feeding in the trees and fields north of the swamp. Ruby-throated Hummingbirds were swarming about the sensitive plants, Chimney Swifts were flying about and migrating southward, and a few Nighthawks were also noted in migration toward evening, on the 29th. Kingbirds were migrating each day, Phœbes were seen about the marsh, and Least Flycatchers were everywhere among the cedars. The Crows were numerous in the fields, and the Blue Jays remained among the trees near the swamp. Bobolinks and Red-winged Blackbirds were migrating in flocks, and only four Bronzed Grackles were seen at all, and they were flying north and toward the grain fields of the island. Goldfinch, Song Sparrow, Cardinal, and Indigo Bunting were all common, particularly so in the vicinity of the swamp, the Cardinals also ranging among the red cedars. Purple Martins, Barn, Cliff, Bank and Rough-winged Swallows were passing southward almost continuously during the early morning and late afternoon. There were many Cedar Waxwings among the red cedar trees, and some in the vicinity of the swamp. Red-eyed Vireos were numerous everywhere among the trees. Of the warblers the Blackburnian, Magnolia, Black-poll, and Canadian were common in

the cedars and deciduous woods, and the Tennessee, Black-throated Blue, Wilson's, Water-Thrush, and Northern Yellow-throat were found in large numbers in the bushes and trees surrounding the swamp, but nowhere else. The entire absence of Redstarts was surprising. A small colony of Carolina Wrens was found in a tangle of fallen trees and bushes, vines and false solomon seal, about twenty rods south of the swamp, near the east shore. Four were actually seen, but there appeared to be more than that. Catbirds were very numerous about the swamp, but strange to say, there were no Brown Thrashers anywhere. Two Chickadees were found at the swamp, and also a number of both White-breasted and Red-breasted Nuthatches there. Robins were everywhere, and a few of them seemed to be migrating. The woods were carefully hunted for thrushes, but none were found until the 31st, when the earliest dawn was filled with the calls of the Olive-backed. During the 31st, and 1st of September, these thrushes literally swarmed in all the woods, even down to the drift wood which lined the middle of the base of the sand spit. None were seen to cross to Middle Island. None were seen there on the afternoon of the 1st, nor any on Kelley's. It seems almost incredible that they should have become so massed on Pelee Island and none have made the short flight to the intervening islands and the Ohio shore.

The above short and incomplete list indicates the great diversity of bird life which visits this island during the year, and the importance of the island as a resting place for the southward migrating host. One might almost venture the assertion that an intensive study of the birds of this island throughout the year would result in a larger list of birds than could be made on any land area of equal extent. At any rate it offers almost compelling inducements to the ardent ornithologist. It possesses many elements of an ideal bird reserve.

The Middle Island list is interesting only by comparison. Common Tern, Herring Gull, Bronzed Grackle, Kingbird,

Wood Pewee, Least Flycatcher, Song Sparrow, Indigo Bunting, Wilson's, Black-throated Blue, Canadian, and Black-poll Warblers, Redstart, Goldfinch, and Robin, all fairly common. It should be noted that there were no Common Terns nesting on this island during this year.

The Kelley's Island list is not of sufficient interest to warrant the space it would occupy. It is sufficient to say that the only migrant birds noted were the Wilson's, Black-poll, and Magnolia Warblers. The Purple Martins were crossing in great numbers from Pelee Island, and could be noted all the way. When they reached Kelley's they remained there, and at early twilight formed a huge funnel shaped cloud over the woods a little west of the middle of the island. This cloud was the signal for retiring into the trees for the nightly roost.

July 28, 1908, a class of ten students visited Pelee, Big Chicken, North Harbor, and Put-in-Bay islands. Since another trip was made to these same islands and also to Little Chicken, Middle, and the Rattle of Rattlesnake islands by four of us from August 17 to 21 of the same summer, nothing need be said of the one-day trip separately. The participants in this launch trip were B. R. Showalter, W. G. Gifford, students, and the writer's fifteen-year-old son. The itinerary of this trip was as follows: Left Sandusky at 3:15 p. m., August 17, spent that night on the east side of Kelley's. Middle Island, 7 to 10 a. m., August 18; Pelee Island, 10 a. m., August 18, to 8 a. m., August 20. Brief stops were made on Little Chicken, Big Chicken (Chick being under water), North Harbor, where lunch was eaten and considerable study and photographing done, the Rattle of Rattlesnake, and Cedar Point, all on August 20, with a stop for the night and early morning at Cedar Point. The only notable things learned on this trip, aside from some new records for Pelee Island, were that there were no changes of any consequence in the conditions on the smaller islands, and we found the Common Terns nesting in as great numbers as possible on the westerly extending reef of Middle Island, and all over the top of the Rattle. We were also told that there were nest-

ings on Starve Island, off the south-eastern exposure of Put-in-Bay, but we were not able to visit it.

On Pelee Island we found the Brown Thrashers in force, one Sparrow and three Marsh Hawks fussing around the point, five Sanderlings and three Red-backed Sandpipers on the point, decidedly more Cardinals and Carolina Wrens than on any previous visit, and of the warblers, Yellow, Pine, Prairie, Chestnut-sided, Black and White, Redstart, Oven-bird, Louisiana Water-Thrush and Yellow-breasted Chat, which were not seen on the previous visit, besides the Northern Yellow-throat, Magnolia, and Canadian Warblers, which were recorded in 1905. Baltimore Orioles were also common, and one Downy and one Hairy Woodpecker were seen at the swamp. Two Field Sparrows, two Olive-sided Flycatchers, one Wilson's Thrush, a female Mallard, many Soras and many Yellow-bellied Flycatchers were also seen. Most of the other birds noted in 1905 were in the same numbers as then.

This concludes the fragmentary studies, and leads up to the detailed studies undertaken on Pelee Island in 1910 and on Point Pelee in 1911, to which they may be regarded as introductory.

MOMENT'S WITH THE LECONTE'S SPARROWS.

(*Passerherbulus lecontei.*)

BY ALTHEA R. SHERMAN, NATIONAL, IOWA.

This locality in northeastern Iowa cannot be far from the center of the migration route of Leconte's Sparrows. The wet meadow that stretches on either side of our back fence seems to offer an ideal stopping-place for this species, yet a faithful outlook maintained for years has failed to furnish a fleeting glimpse of one of these bright little birds. During the past autumn (1911) unfavorable conditions in the home meadow forced me to seek the sparrow migrants in a similar one situated a quarter of a mile away, and farther up the same ra-

vine, located in some abandoned village lots and abutting on an unfrequented street.

There around a water-hole grew a patch of weeds, triangular in shape and measuring about seventy-five feet on each side. The weeds were mostly rag-weeds, interspersed with some Spanish needles and smart-weed and a few sunflowers. The sloping ground on the west was covered with pig-weeds, while on the level land to the north and east grew the wild grass of the slough. The attraction of weeds and water were sufficient to draw numbers of nearly all the sparrow species that pass this way; the handsome Fox and the no less striking Harris's Sparrows were there in small numbers; Swamp Sparrows were numerous, and at the height of their migration, Lincoln's Sparrows outnumbered the Song Sparrows, as many as a dozen being present at one time. Among the rarer of the visitors were a Henslow's Sparrow and a Bittern. The first Leconte's Sparrow was found there on September 23, and the last one was seen on October 20.

Since the days of Audubon the Leconte's Sparrow has been termed "shy," "skulking" or "elusive" as is exemplified by Dr. R. M. Anderson's comment in The Birds of Iowa, when he says: "It is seldom seen on account of its habit of skulking in the thick dead grass along the borders of sloughs and in low places. It seldom rises unless almost stepped on, flies a short distance, dropping out of sight again in the dense grasses." This characteristic is implied in a statement of Kumlien and Hollister taken from their Birds of Wisconsin: "One of the most difficult birds imaginable to collect, as it is never seen until flushed, must be shot on the wing, and last, but not least, FOUND after it is killed." The behavior of the Leconte's Sparrow that came under my observation did not conform to the usual descriptions. Why this was so may be a difficult problem to solve, unless the absence of all collectors had something to do with it.

In the period of four weeks from the first to the last date of their appearance an absence from home and inclement weather prevented visits to their haunts on eight days, leaving

twenty days upon which the place was visited. Four of the species were in sight at the same time on one day; three were seen together on two days, and on other two days two were in sight, while a single Leconte's Sparrow was seen on seven days, making in all twelve days out of twenty upon which they appeared The length of my daily visits varied from half to a whole hour. The views of the birds were not purely transitory, but lasted from five minutes to nearly a half hour.

The first one to be seen sat on a weed-top that raised itself out of the slough grass. There the bird remained fully twenty minutes, sometimes uttering its insect-like chirp. On several days a bird sounded this note. If the singer was on the fence nervous, wren-like jerks shook its body. At other times these birds sat very quietly on grass-stem, weed-stalk or fence.

The second Leconte's Sparrow was met on September 25. I was standing quite near the fence when the sparrow alighted on it about twenty feet away; it visited a rag-weed, then returned to the fence, this time no farther than fifteen feet from me. It was in sight about seven minutes. At this same spot a week earlier by mutual advances the distance between a Short-billed Marsh Wren and myself was reduced to less than three feet. On the following day as I approached their habitat three Leconte's Sparrows sat on the fence awaiting me; when within thirty-five feet of them I sat down; during a stay of upward an hour one or two of them were visible most of the time. Streaks on the breast of one proclaimed it a juvenile. Nine days later three again were seen, one of which had a streaked breast. One visit was made in the rain; the bird sitting on the fence was not frightened away, although I carried an opened umbrella and sat down within thirty feet of it. Enough instances may have been given to show that these Leconte's Sparrows were not shy, skulking or elusive, and that it would be hard to admit that they were not as bold as their congeners all about them.

When perched on grass-stems their colors blended so well with the yellowing wild grass that the birds were not quickly recognized, but when sitting on the dead, brown weeds of

the patch they were most strikingly conspicuous. They were never seen on the western or pig-weed side of the patch, but appeared on its eastern border or in the slough grass. The only time one was seen feeding it was eating the seeds of a sunflower; having finished that repast it mounted to the top of the stalk, and flew from it to a field of ripened clover some eight or ten rods away. At the same time another of this species was making its way to the top of a small willow about eight feet high, which was the highest point any one of them was seen to have attained.

OBSERVATIONS OF BIRD-LIFE IN NORTHERN NEW JERSEY DURING THE WINTER OF 1910–1911.

BY LOUIS S. KOHLER.

Bird life this past winter has been unusually abundant throughout Northern New Jersey. In fact, my records have surpassed those of any year within the past decade, and it is my opinion that this profusion of residents and visitants was almost wholly due to the mildness and openness of the season. Owing to the lack of sufficient time, observations this season were curtailed to a large extent and were only made on those days available, whereas in previous years observances were made daily, and in view of this curtailment, it is my opinion that many species went unrecorded.

December began with cold, bracing weather and ice formed on a majority of the shallow ponds in this vicinity. This weather continued through the month until December 27th when it moderated slightly. Snow fell on the 4th to the depth of nine inches and again on the 11th and 12th three inches more fell. On Christmas Day, which was clear and cold with a biting westerly wind, a large portion of this snow still remained on the ground. On the 29th the temperature dropped below freezing and remained so until New Year's Eve. New Year's Day was marked by heavy clouds during the morning and a drizzling rain accompanied by a cold northwest wind in

the afternoon. The two weeks following New Year's were also marked by heavy rains and a general rise in temperature. With this rise in temperature came a thaw which made traveling under foot very disagreeable. January 16th, 17th, 18th and 19th were clear and very cold. Light variable winds prevailed on each of these days.

On January 22nd, about three inches of snow fell. This storm was accompanied by a northeast wind and a slight rise in temperature. The last nine days of January were generally fair, excepting the 26th, 27th and 29th when drizzling rains occurred which eradicated all traces of the snowfall of the 22nd. This entire period up to the 31st was quite warm and only on the last day did the temperature drop below 30° Fahr.

The first two weeks of February held forth almost daily changes of weather. The 1st, 5th, 11th and 13th were fair and rather warm. On the 2nd and 8th sleet storms occurred. Snow prevailed on the 3d, 6th, 7th and 9th and these storms were usually accompanied by a slight dropping of the thermometer. On the 4th a heavy thunder and lightning storm occurred and was followed by a rise in temperature and short period of clear weather. The 10th and 14th were marked by warm rains.

The last two weeks were generally fair and moderate. Snowfalls occurred on the 16th and 20th, but the snow did not lie upon the ground in either case more than two or three days. The temperature was variable throughout this latter period. It did not drop to 25° Fahr. and for a major portion of the time remained in the vicinity of the freezing point.

In making the following records, I visited Wayne, Pequannock, Pompton Plains, Pompton Junction, Upper Mountclair, Great Notch, Newark Meadows and East Orange, and as the basis of these operations used points about my home (Bloomfield.) There were three places in Bloomfield in which extensive observations were made on each day records were made. These were on a twenty acre farm near my home which I shall hereafter style "The Haunt," Noll's Swamp and Bennett's Swamp. This farm which I have named "The Haunt" is an

exceptionally fine tract in which to pursue studies of many of the bird residents and visitants of this section, as there is always an abundance of both during their seasons. It was on this tract that I began my first recordings of the birds and where I first gathered notes regarding their local distribution, nestings and habits. It has always been my custom to include this farm in all my tramps when in the neighborhood. On the days of each year when my largest lists are taken, this little tract has always been made the nucleus about which is built the entire structure, and it is rare when it does not furnish the major portion thereof. The two swamps mentioned consist of about twenty acres each and are always prolific in birdlife the whole year around. In addition to the above places, Branch Brook Park, on the outskirts of Newark, was frequently visited and yielded several interesting surprises. Among these were the two records of the Fox Sparrows. This bird is very rare during the winter in this locality, another bird which is usually uncommon in the winter in this section is the Red-headed Woodpecker. The following records will show that this past winter this bird was present during the first half on almost each day observations were made. The records of the Merganser on the 1st of January and February 19th were also out of the ordinary.

The bird observed were: American Herring Gull, Marsh Hawk, Sharpshinned Hawk, Sparrow Hawk, Barred Owl, Downy Woodpecker, Red-headed Woodpecker, Southern Flicker, Blue Jay, Crow, Starling, Meadowlark, Goldfinch, Pine Siskin, White-throated Sparrow, Tree Sparrow, Slate-colored Junco, Song Sparrow, Fox Sparrow, Brown Creeper, White-breasted Nuthatch, Chickadee, Golden-crowned Kinglet and Merganser. This makes a total of twenty-four species observed.

December 5th.—A male Flicker was found in the apple orchard in The Haunt during the early morning. No other birds apparent.

December 11th.—A pair of White-throated Sparrows found feeding on the berries of the Virginia creeper in The Haunt.

December 18th.—Red-headed Woodpecker—One in Noll's Swamp

and a pair in Bennett's Swamp; Junco—three in a sheltered ditch in Noll's Swamp; Blue Jay—one in Noll's and two in Branch Brook Park; Barred Owl—one in Noll's and one in Branch Brook Park; Pine Siskin—three in Branch Brook Park; Tree Sparrow—common at Bennett's and in Park; White-breasted Nuthatch—one at Bennett's and two in Park; White-throated Sparrow—two in Branch Brook Park; Downy Woodpecker—one in Park; Fox Sparrow—one in Park among laurels. My attention was attracted to this latter species by its metallic "Cheep" which it uttered at frequent intervals.

December 19th.—A pair of Herring Gulls were found this afternoon on the Newark Meadows flying over and occasionally dipping into the murky waters of the Passaic River. No other birdlife apparent.

December 22d.—A pair of Golden-crowned Kinglets appeared in The Haunt at noon to-day among the locusts. Their lisping notes were heard at numerous times during the remainder of the afternoon.

December 25th.—Red-headed Woodpecker—one in Noll's and one in Bennett's; White-breasted Nuthatch—two in Bennett's Swamp among the second growth maples; Song Sparrow—four in Branch Brook Park and one near a pigsty in Great Notch; Chickadee—two in Branch Brook Park; White-throated Sparrow—four among the laurels in Branch Brook Park; Barred Owl—one seen in Park and another in Montclair Heights on hill back of State Normal School; Golden-crowned Kinglet—two found in The Haunt; Crow—nineteen seen at numerous places about Bloomfield; Junco—five found among dead grasses near Montclair Heights.

December 26th.—Crow—two seen flying about near ground in The Haunt; also found a Marsh Hawk here in the early morning. Two Song Sparrows were seen at Bennett's Swamp.

December 28th.—During an half on the Newark Meadows to-day found two Song Sparrows and a pair of Tree Sparrows among the dead rushes near the river bank.

January 1st.—Observations made in Passaic and Morris Counties only. At Wayne (Morris) crows were found to be fairly abundant among the small groups of trees present and on the ground near the granaries. They were later found at Pequannock, and Pompton Plains in Morris Co., and at Pompton and Pompton Junction in Passaic Co. in large numbers. They were usually upon the ground at the last four places. White-breasted Nuthatch—common at Pequannock and Pompton Plains in the trees near the banks of the Pompton River; Tree Sparrow—abundant at Wayne and were continually singing; Blue Jay—very abundant at Pequan-

nock; White-throated Sparrow—three along river edge at Pompton Plainn; Marsh Hawk—two near Morris Canal Feeder in Pompton Plains; Goldfinch—common at Pompton Plains among trees near river and in open fields adjacent; Downy Woodpecker—common at Pequannock; Brown Creeper—one at Pompton Plains; Merganser (drake) on Pompton River at Pompton Plains. This bird is rather uncommon in this locality. Song Sparrow—but one found and this at Pompton Plains in company with White-throats. Sharp-shinned Hawk—one at Pompton Plains.

January 6th.—Found a few Herring Gulls silently flying up and down the Passaic River on Newark Meadows this afternoon. There were probably fifteen, although it was difficult to count them, as they would disappear occasionally and return in pairs and trios.

January 8th.—Red-headed Woodpecker—one male in Bennett's Swamp. Golden-crowned Kinglet—two pairs among laurels in northern section of Branch Brook Park. Brown Creeper—a pair in company with the Kinglets in Park. Fox Sparrows—three among laurels in Park. Were very shy and could only get slight glimpses of them as they flew about underneath the cover.

January 15th.—Sparrow Hawk—one found perching at the top of a dead tree in Bennett's Swamp. Red-headed Woodpecker—one found quietly pecking on the bark of a decayed maple in this swamp. Tree Sparrow—common among dead grass and vegetation in this swamp. Golden-crowned Kinglet—four among the white birches in Branch Brook Park; Goldfinch—four flying over playfield inn orthern section. A small flock appeared in Noll's Swamp in late afternoon. White-throated Sparrow—three among the rose brambles near Clark's Pond in Branch Brook Park.

January 17th.—While on the Meadows this afternoon the only bird which I found was a Sharp-shinned Hawk. This was located near the Pennsylvania Short Line and was devouring the remains of a domestic rabbit.

January 19th.—A Downy Woodpecker was seen about The Haunt all day, especially about an apple tree, on which was nailed several pieces of suet. This bird was very fond of this material, but was only seen on this date.

January 22d.—A Red-headed Woodpecker appeared in The Haunt about noon to-day in the orchard and remained for about fifteen minutes.

January 23d.—Red-headed Woodpecker—a pair found in Noll's Swamp. Crows—two found in East Orange near old waterworks. Blue Jay—one found with Crows. Song Sparrows—two in open field in East Orange. White-throated Sparrow—six at Watsessing

Park, East Orange. Tree Sparrow—ten in company with Whitethroats.

January 28th.—A Sparrow Hawk appeared over the house this morning flying northward against a strong wind. Its progress through the air was materially hindered by the wind and was fully ten minutes before it disappeared on the northern horizon.

January 29th.—Meadowlark—one at Powder Works in Wayne, N. J. This is rather uncommon in this part of the state during January and only record I have for this month. Marsh Hawk—one in swamp near Pequannock. Crow—one at Pompton Junction.

February 2d.—Red-headed Woodpecker—one about The Haunt throughout the day.

February 3d.—Six Goldfinches appeared among locusts in The Haunt to-day while a heavy snowstorm was in progress. Their twittering was heard for over an hour, although they were not visible at times owing to the falling snow.

February 5th.—Sparrow Hawk—two found in Noll's Swamp and two more at Bennett's. Tree Sparrow—three in Branch Brook Park among laurels. Golden-crowned Kinglet—two in company with Tree Sparrows in Park. White-throated Sparrow—one in Park with Kinglets and Tree Sparrows.

February 12th.—Crows—four in The Haunt. Junco—two in Noll's Swamp. Downy Woodpecker—one in Noll's. Blue Jay—one in Watsessing Park. Sparrow Hawk—one at Riverside, Passaic Co., N. J.

February 18th.—Visited Pequannock, Great Notch, Pompton Plains and Pompton Junction. Found Crows abundant at all places visited. Were usually walking about on the ground. Chickadee—common along the canal banks in Pequannock and near the Pompton River at Pompton Plains. Marsh Hawk—one at Pompton Plains. White-breasted Nuthatch—one in a poplar at Pompton Plains. Three Sparrow—ten in open field at Pompton Plains. Mergansers—two along river bank in Pompton Plains. Downy Woodpecker—one at Pompton Junction. Pine Siskin—one in company with Chickadees at Pompton Plains.

February 21st, 1911.—White-breasted Nuthatch fount in The Haunt at noon among locusts.

February 23d, 1911.—A Golden-crowned Kinglet appeared in The Haunt to-day in company with fifteen or sixteen Chickadees.

February 26th, 1911.—Crow—one in The Haunt. Sparrow Hawk—one in Noll's Swamp devouring the remains of a freshly killed English Sparrow. Junco—one in Noll's Swamp. In late afternoon a small flock of about fifty Crows flew northward over the house.

WHY BIRDS ARE SO NAMED.

BY KATIE M. ROADS.

"What's in a name?" Would some of the names of our birds suit one as well as another, or, as in other branches of science, has there been some significance attached to them or some characteristic described by them?

While some birds rest content with one name, some have such marked pecularities as to attract the attention of different persons and each person has given his own interpretation of these by giving a name of his own. This may account for the 124 different names for the Flicker as compleid by Frank L. Burns, in The Wilson Bulletin No. 31. While all birds have not this motley array of names, the majority are supplied with several.

In the following incomplete list it will be observed that the names employed involve practically every part of the bird's external anatomy. The color involves the main color of the bird as well as the color of the head, the back, the wings, the tail, the under parts, the sides, the bill, and even peculiarities in markings. The shape and length of tail and bill, peculiarities of feet and legs, the place it frequents, the call notes, the song, the imitation in either form, color, or notes, and other things, including persons and places. While many of these names are more or less useful in describing the bird, some of them are distinctly misleading or misnomers.

It will be impossible to collate all names which every bird may be or may have been called by, therefore it seems wise to limit this paper to the vernacular or English names in general use and of recognized standing in ornithological literature. The different headings will often be sufficiently descriptive so that annotations for each species will be unnecessary. A supplementary paper on local names may follow this one if such a paper may seem of sufficient interest.

The Main Color Of The Bird.

White: Ivory Gull, Snowy Egret, Snow Goose, Snowy

Owl, Snow Plover, White Gyrfalcon, White Heron (Great), White Ibis, White Pelican, White Wagtail.

PURPLE: Glossy Ibis, Purple Finch, Purple Gallinule, Purple Martin, Purple Sandpiper.

GRAY: Ashy Titmouse, Ashy Petrel, Cinereous Shearwater, Clay-colored Sparrow, Dusky Grouse, Dusky Horned Lark, Dusky Kinglet, Dusky Poor-will, Dusky Seaside Sparrow, Dusky Warbler, Frosted Poor-will, Glaucus Gull, Gray Flycatcher, Gray Gyrfalcon, Gray Jay, Gray Kingbird, Gray Ruffed Grouse, Gray Sage Sparrow, Gray Sea Eagle, Gray Titmouse, Gray Owl (Great), Gray Vireo, Gray Warbler (Black-throated), Cerulean Warbler, Indigo Bunting, Lazuli Pallid Horned Lark, Pallid Wren-tit, Plumbeous Chickadee, Plumbeous Gnatcatcher, Plumbeous Vireo, Slate-colored Fox Sparrow, Slate-colored Junco.

BLUE: Azure Bluebird, Bluebird, Blue Goose, Blue Grosbeak, Blue Heron (Great & Little), Blue Jay, Blue Warbler (Black-throated), Cerulean Warbler Indigo Bunting, Lazuli Bunting.

GREEN: Green Heron, Green Jay, Green Sandpiper, Green Warbler (Black-throated), Green Woodpecker, Olivaceous Flycatcher, Olive Warbler.

YELLOW: Golden Eagle, Golden Pileolated Warbler, Golden Plover, Goldfinch, Lutescent Warbler, Pale Goldfinch, Yellow Palm Warbler, Yellow Rail, Yellow Warbler.

RED: Flamingo, Red Crossbill, Redstart, Roseate Spoonbill, Roseate Tern, Rosy Finch, Scarlet Ibis, Scarlet Tanager, Vermillion Flycatcher.

BROWN: Brown Crane (Little), Brown Creeper, Brown Pelican, Brown Thrasher, Bronzed Cowbird, Bronzed Grackle, Cinnamon Teal, Ferruginous Pygmy Owl, Ferruginous Rough-leg, Fox Sparrow, Fulvous Tree-duck, Ruddy Duck, Ruddy Quail-Dove, Ruddy Turnstone, Ruddy Wren-tit, Ruddy Horned Lark, Rufous Humingbird, Rusty Song Sparrow, Scorched Horned Lark, Umber Bird.

BLACK: Blackbird, Black Brant, Black Duck, Black Guillemot, Black Gyrfalcon, Black Oystercatcher, Black Petrel,

Black Pigeon Hawk, Black Phoebe, Black Rail, Black Petrel, Black Rosy Finch, Black Skimmer, Black Swift, Black Tern, Black Turnstone, Black Vulture, Sooty Albatross, Sooty Fox Sparrow, Sooty Grouse, Sooty Shearwater, Sooty Song Sparrow, Sooty Tern, Velvet Scoter.

Of General Application But Not Solid Colors.

Two Colors: Blue-gray Gnatcatcher, Violet-green Cormorant, Violet-green Swallow, Yellow-green Vireo, Black and White Warbler.

Spotted: Dotted Canon Wren, Spotted Crake, Spotted Owl, Spotted Petrel, Spotted Sandpiper, Spotted Screech Owl, Ocellated Turkey, Scaled Partridge, Scaled Petrel, Scaled Pigeon.

Barred Or Variegated: Barred Owl, Carbonated Warbler, Gilded Flicker, Lucifer Hummingbird, Marbled Godwit, Marbled Murrelet, Mottled Duck, Painted Bunting, Painted Redstart, Pied Wagtail, Varied Bunting, Varied Thrush.

Color Of The Back.

White: White-rumped Sandpiper, White-rumped Shrike.

Yellow: Yellow-rumped Warbler.

Green: Green-backed Goldfinch, Olive-backed Thrush.

Red: Red-backed Junco, Red-backed Sandpiper.

Brown: Chestnut-backed Bluebird, Chestnut-backed Chickadee, Russet-backed Thrush.

Black: Black-backed Gull (Great), Slaty-backed Gull.

Color Of The Bill.

White: Ivory-billed Woodpecker.

Yellow: Yellow-billed Cuckoo, Yellow-billed Loon, Yellow-billed Magpie, Yellow-billed Tropic Bird, Yellow-nosed Albatross.

Red: Red-billed Pigeon, Red-billed Tropic Bird.

Black. Black-billed Cuckoo, Black-billed Magpie, Pied-billed Grebe, Ring-billed Gull.

Color Of The Head.

White: Bald Eagle, White-cheeked Goose, White-crested

Cormorant, White-crowned Pigeon, White-crowned Sparrow, White-eared Hummingbird, White-faced Ibis, White-faced Petrel, White-fronted Dove, White-fronted Goose, White-headed Woodpecker, White-naped Nuthatch.

GRAY: Gray-cheeked Thrush, Gray-crowned Rosy Finch, Gray-headed Junco.

BLUE: Blue-eared Jay, Blue-faced Booby, Blue-headed Quail-Dove, Blue-headed Vireo.

YELLOW: Golden-cheeked Warbler, Golden-crowned Kinglet, Golden-crowned Sparrow, Golden Eagle, Orange-crowned Warbler, Yellow-crowned Night Heron, Yellow-headed Blackbird.

RED: Red-cockaded Woodpecker, Red-faced Cormorant, Red-faced Warbler, Red-headed Woodpecker, Red-naped Sapsucker, Redpoll, Ruby-crowned Kinglet.

BROWN: Brown-capped Rosy Finch, Brown-headed Nuthatch, Chestnut-collared Longspur, Rufous-crested Duck, Rufous-crowned Sparrow.

BLACK: Black-capped Chickadee, Black-capped Petrel, Black-capped Vireo, Black-crested Titmouse, Black-crowned Night Heron, Black-headed Goldfinch, Black-headed Grosbeak, Black-headed Gull (Laughing), Black-headed Jay, Black-poll Warbler, Black-whiskered Vireo

GENERAL: Bridled Tern, Bridled Titmouse, Hooded Warbler, Masked Duck, Pileated Woodpecker, Pileated Warbler, Spectacled Eider, Whiskered Auklet.

COLOR OF THE TAIL.

WHITE: White-tailed Hawk (Sennett's), White-tailed Kite, White-tailed Ptarmigan, Gray-tailed Cardinal.

RED: Copper-tailed Trogan, Red-tailed Hawk, Red-tailed Tropic Bird.

GREEN: Green-tailed Towhee.

BLACK: Black-tailed Gnatcatcher, Black-tailed Godwit, Black-tailed Shearwater.

GENERAL: Band-tailed Pigeon, Zone-tailed Hawk.

Color Of The Throat, Chin And Neck.

White: White-necked Raven, White-throated Sparrow, White-throated Swift, White-throated Wren.

Gray: Ash-throated Flycatcher.

Yellow: Yellow-throat, Yellow-throated Vireo, Yellow-throated Warbler.

Blue: Blue-throat (Siberian Red-spotted), Blue-throated Hummingbird.

Red: Red-throated Loon, Ruby-throated Hummingbird.

Brown: Buff-breasted Sandpiper, Chestnut-collared Longspur.

Black: Black-chinned Hummingbird, Black-chinned Sparrow, Black-necked Stilt, Black-throated Blue-Warbler, Black-throated Gray Warbler, Black-throated Green Warbler, Black-throated Sparrow, Ring-necked Duck.

Color: Of The Underparts.

White: Gray-breasted Martin, White-bellied Brant, White-breasted Nuthatch.

Yellow: Golden-fronted Woodpecker, Sulphur-bellied Flycatcher, Yellow-bellied Flycatcher, Yellow-bellied Sapsucker, Yellow-breasted Chat.

Green: Olive-sided Flycatcher.

Red: Pink-sided Junco, Red-bellied Hawk, Red-bellied Woodpecker, Red-breasted Merganser, Red-breasted Nuthatch, Red-breasted Sapsucker, Red-throated Loon, Rose-breasted Grosbeak.

Blue: Blue-fronted Jay.

Brown: Bay-breasted Warbler, Buff-bellied Hummingbird, Buff-breasted Flycatcher, Chestnut-bellied Quail, Chestnut-sided Warbler.

Black: Black-bellied Plover, Black-bellied Tree-Duck, Black-throated Loon, Black-vented Shearwater.

Color Of The Wing.

White: Glaucus-winged Gull, White-winged Blackbird, White-winged Crossbill, White-winged Dove, White-winged

Junco, White-winged Scoter, White-winged Tern.

BLUE: Blue-winged Teal, Blue-winged Warbler.

GREEN: Green-winged Teal.

YELLOW: Golden-winged Warbler.

RED: Red-shafted Flicker, Red-shouldered Hawk, Red-winged Blackbird, Red-winged Thrush.

BROWN: Rufous-winged Sparrow.

BLACK: Black-winged Guillemot.

Tricolored Blackbird.

COLOR OF THE FEET AND LEGS.

Black-footed Albatross, Blue-footed Booby, Pink-footed Goose, Pink-footed Shearwater, Red-footed Booby, Red-legged Black Duck, Rel-legged Kittiwake, Pink-footed Shearwater, Yellow-legs.

COLOR OF THE EYE.

Golden-eye, Red-eyed Cowbird, Red-eyed Vireo, White-eyed Towhee, White-eyed Vireo.

GENERAL CHARACTERS.

BILL: Broad-billed Hummingbird, Crosbill, Curve-billed Thrasher, Groove-billed Ani, Gull-billed Tern, Hornbill, Large-billed Pewee, Large-billed Puffin, Large-billed Sparrow, Large-billed Towhee, Long-billed Curlew, Long-billed Dowitcher, Long-billed Marsh Wren, Puffin, Razor-billed Auk, Short-billed Marsh Wren, Slender-billed Fulmar, Slender-billed Nuthatch, Slender-billed Shearwater, Spoonbill (Roseate), Spoon-bill Sandpiper, Thick-billed Fox Sparrow, Thick-billed Parrot, Thick-billed Red-Wing.

FEET AND LEGS: Bristle-thighed Curlew, Light-footed Rail, Longspur, Long-toed Stint, Rough-legged Hawk, Semipalmated Plover, Sharp-shinned Hawk, Spurred Towhee, Stilt Sandpiper, Three-toed Woodpecker.

HEAD AND NECK: Bufflehead, Crested Auklet, Crested Flycatcher, Double-crested Cormorant, Eared Grebe, Hooded Merganser, Horned Grebe, Horned Lark, Horned Owl (Great), Horned Puffin, Long-crested Jay, Long-eared Owl, Narrow-fronted Woodpecker, Plumed Quail, Ring-necked

Duck, Ruff, Ruffed Grouse, Short-eared Owl, Small-headed Warbler, Tufted Puffin, Tufted Titmouse.

Tail: Boat-tailed Grackle, Broad-tailed Hummingbird, Fork-tailed Flycatcher, Fork-tailed Petrel, Great-tailed Grackle, Long-tailed Chat, Long-tailed Jaeger, Pintail, Scissor-tailed Flycatcher, Sharp-tailed Grouse, Sharp-tailed Sparrow, Sharp-tailed Sandpiper, Short-tailed Gull, Short-tailed Hawk, Swallow-tailed Gull, Swallow-tailed Kite, Wedge-tailed Shearwater.

Wing: Broad-winged Hawk, Rough-winged Swallow, Waxwing.

(To Be Concluded.)

SOME BIRD NOTES FROM NEW YORK CITY.

BY GEORGE E. HIX.

Wood Duck.—This duck is a summer resident of Van Cortlandt Park. At least one pair have bred there during the last two summers. On July 4th, 1911, a female was seen leading a brood of eight. In the fall the nesting birds are probably joined by others from elsewhere, as many as nineteen being seen in one flock, of which four were adult males. They remained until November.

Northern Phalarope.—Westchester Avenue, for a distance of about a quarter of a mile, cuts through a slough which will eventually be filled in. On the north side of the avenue there is an extensive pond, sometimes quite deep, at others, with exposed mud-flats, or shallows. On August 26 there was a large flock of various shore-birds roaming about the mud-flats and wading in the shallows. The Phalarope was with these birds. Its different behavior drew attention to it immediately It was feeding from the surface of the water, and continually swinging its body from side to side. It was present all afternoon, and during that time seldom flew.

Bald Eagle.—Eagles were present on the Hudson River in the usual numbers during the past winter (1910-11). As cold

weather set in early and plenty of ice came down the river in December, they were first seen during that month. They were present until the end of February or beginning of March.

Redpoll.—This species was very abundant in the northern part of the city during the past winter (1910-11). They first appeared toward the end of December and remained until March. They first showed a preference for the sweet-gum trees, in which they fed with Siskins and Goldfinches. Toward the end of their stay they were found mostly in white birches. As many as 300 were seen in one flock.

Pine Siskins.—On May 17, 1911, a flock of six were seen in Central Park. This is the latest they have ever been seen in the Park. In fact the Pine Siskin is not often seen there at any time.

Rough-winged Swallow.—This is a summer resident in Van Cortlandt Park, but the nesting site has not been discovered yet. They may nest in some crevices in one of the railroad bridges They are mostly seen along one branch of the railroad. Nine were perched upon a telegraph wire at one time, so there were probably two pairs present this past summer.

Migrant Shrike.—A fine adult bird was seen in Central Park on September 15, 1910. It was perched upon a fence surrounding one of the reservoirs, and was eating something which was too far gone to distinguish what it was. This is the only bird of this species recorded from the Park.

Cape May Warbler.—This bird is noticeably increasing in numbers in this vicinity during migrations. It was almost common in Central Park during the fall migration of 1910. The writer's records are as follows: September 3 and 4, two immature males (probably same birds on both days); September 8, an immature male; September 17, a female; September 25, a female; September 29, three immature males and a female in one flock. Other observers reported several more birds. During the past spring a pair or two spent several days in the Park. One male was an exceedingly hand-

some bird. The yellow on the throat and breast was very intense, almost orange, and the chestnut auricular patch was very extensive.

Palm Warbler.—The western Palm Warbler is occurring quite regularly in Central Park during the fall migration. On September 22 a flock of three were seen. This past year one was seen on September 10. All these birds were typical specimens and were spotted at a glance.

Central Park is the best place for miles around in which to study the Warbler migrations. As only two species, the Yellow and the Redstart, nest, any other showing up in the fall can safely be called migrants. The first individuals appear soon after the first of August. The Black and White and Blue-winged share the honor of being the first species. The latter is often common in August, but is very rare in spring. Both nest in near surrounding country. As Myrtle Warblers never winter in the Park, the first to appear in the spring are of course migrants. The above illustrations show the position of Central Park in regards to Warbler migrations.

A list of the species that have been recorded may be of interest:

1. Black and White Warbler.
2. Prothonotary Warbler.
3. Worm-eating Warbler.
4. Blue-winged Warbler.
5. Brewster's Warbler.
6. Golden-winged Warbler.
7. Nashville Warbler.
8. Tennessee Warbler.
9. Parula Warbler.
10. Cape May Warbler.
11. Yellow Warbler.
12. Black-throated Blue Warbler.
13. Myrtle Warbler.
14. Magnolia Warbler.
15. Chestnut-sided Warbler.
16. Bay-breasted Warbler.
17. Blackpoll Warbler.
18. Blackburnian Warbler.
19. Black-throated Green Warbler.
20. Pine Warbler.
21. Palm Warbler.
22. Yellow Palm Warbler.
23. Prairie Warbler.
24. Ovenbird.
25. Water-Thrush.
26. Louisiana Water-Thrush.
27. Kentucky Warbler.
28. Connecticut Warbler.
29. Mourning Warbler.
30. Maryland Yellow-throat.
31. Yellow-breasted Chat.
32. Hooded Warbler.
33. Wilson's Warbler.
34. Canadian Warbler.
35. Redstart.

George E. Hix.

ALLEGED BREEDING OCCURRENCE OF THE LE CONTE SPARROW IN ILLINOIS.

BY P. B. PEABODY.

An article dealing with the alleged breeding of the Le Conte Sparrow, near Chicago, published by G. A. Abbott in the Wilson Bulletin No. 74, is a conspicuous example of the unwisdom of snap-shot identifications. In the first place, the A. O. U. Check List of 1910 does not accredit the LeConte Sparrow as breeding south of Southern Minnesota; (while even *this* record appears to rest, as believed by some of us who have studied birds critically in Southern Minnesota, upon wholly inadequate indentifications.) In the second place, Mr. Abbott naively throws a shadow over his own identifications by admitting that he "neglects small birds in his zeal to follow and study the water fowl." In the third place, the location where Mr. Abbott's alleged LeConte Sparrows attempted to rear their young is, while sharply characteristic of the Henslow Sparrow, (as well in Kansas as Ohio), exactly the sort of location wherin the LeConte Sparrow never, so far as past discoveries go, is known to nest. The site, also, in a "little clump of coarse grass" is utterly alien to the LeConte habit. Therefore, when Mr. Abbott expressly tells us that he "did not catch a glimpse of" the male parent which lured him on by its ventriloquism while the female flushed at ten feet; and dropped, after short flight, into cover, how can he expect the critical world of bird students to accredit his find of a "neat little nest," with their five eggs "showing a distinct individuality," to a species not known to nest anywhere in the region in question? The writer having taken more sets of eggs of the LeConte Sparrow than any other ornithologist, living or dead, and being intimately and critically familiar with the nesting habits and conditions of this exceedingly furtive species, he may be pardoned in speaking dogmatically concerning Mr. Abbott's manifestly delicious but palpably futile find. One must confess that the nest, as decribed by Mr. Abbott, is strik-

ingly le-conte-nest-like. One might say more were that nest in hand. As to the eggs, however, one must enter a prompt *non sequitur*. There *is no* "distinct individuality" about the eggs of the LeConte Sparrow. Moreover, I have yet to see an egg of this species bearing bright, or half-bright, colorations. (Grays, lilacs and dull-browns normally prevail.) And the "ashy-grey" ground is not in the least diagnostic; indeed, I do not recall ever having seen a set, or an egg, of the Le Conte Sparrow having such a ground-color. The writer has one set in which the ground color is probably bluish; as, in at least a faint degree, are a possible majority of eggs of this species. The set above referred-to quite strikingly resembles certain types of eggs of the Swamp Sparrow; save that the blotchings are exceedingly obscure; with an effect that might almost be called a marbling. At the antipodes of this set is one which is of a clear, pale blue-green, with tiny spots over the entire surface. But neither of these sets is typical. The bulk of typical eggs of the LeConte Sparrow have, with the decided bluish-white or bluish-grey brown tint, a tendency rather to spotting than to either blotching or to stippling. Mr. Abbott's Henslow-Sparrow-find conforms, in every detail, (excepting, possibly, in the brighter ground-tint of the eggs), to like conditions by me in Kansas.

When will we all of us learn that there is nothing diagnostic as a rule, in the matter of mere *shapes*, with eggs of any and all Sparrows? Some of my series of eggs of the LeConte Sparrow are fairly subpyriform; many are ovate; and some almost oval. But there is no specific *shape*. The LeConte Sparrow never provably nests on upland rolling ground. And it never nests in isolated grass-clumps. The locations are uniformly, so far as I have observed, in wet, willow-studded upland meadows; wherein are perfect wildernesses of prone dead grass. I never found but one nest in any other sort of cover, that one having been ensconsed, (in just such a meadow as I have cited), on a slight bog out of which grew a thistle, in the midst of living and dead grasses. (This nest had the added idiosyncrasy of being at the highest elevation in my experience,

about twelve inches, or more.) As Mr. Abbott infers, the nest of the LeConte Sparrow is (probably) never on the ground. It is immeasurably unfortunate that Mr. Abbott did not secure one of the parents of the eggs he has decribed, or that he did not make minute notes as to the character of the call of this fugitive little LeConte Sparrow. If he will kindly attempt this, in the pages of the Bulletin, he will possibly be doing distributional ornithological science a distinct favor; since, in point of fact, there is no other American sparrow whose song note is in any remotest sense like that of *A. leconteï*: (which is uttered, with pre-eminent distinctness and frequency, at nightfall.) The flight ascribed by Mr. Abbott to the parent bird he flushed on his stream-bordering side-hill might mislead careful observers who certainly desire to know just how a flushed Le Conte Sparrow flies from her nest. In very truth, she flies, sometimes one way, sometimes another, according to her individual temperament. At times a flushed mother of this species will fly slowly from her nest. Seldom, indeed, will she "dart slowly": (how *could* she)? The flight of the LeConte, from her nest is usually direct, poised, sometimes slow; but never "feeble." Moreover, I never yet made the acquaintance of a Le Conte Sparrow that would flush from the grass nearer than ten feet to her nest. She creeps, mouse-like, from her nest, at the faintest alarm; flushing, then only at some distance, exactly as does a bobolink. This is a practically invarying fact; (though nobody would be readier than I to accept statement as to one, two or three instances to the contrary. We have yet to learn,-many of us,-that there are few universal laws governing, intra-specifically, any unit of bird-behavior.) For the possible edification of such students of sparrow ways as have never had the good fortune to study the LeConte and the Nelson Sparrows in their nesting-environ, one might add a few items to this paper-of-protest.

Le Conte is a sparrow of the upland meadows; *Nelson's*, of the lowlands. The nests and the eggs of the two, unlike as are the habits, calls and nuptial songs of these two "cousins," are practically identical: especially the nests. The eggs of Nelson

Sparrows that I have seen conform to the paler type of Le Conte eggs. The nest sites and placings are precisely the same.

In manner at nest, I am inclined to believe, (from *very* narrow experience,) that these two sparrows are totally unlike in their reactions. In searching for nests of the Le Conte Sparrow you make your circuits with your drag-rope; and when a bird flushes, you drop the rope quickly, and begin to search about five feet back of where you think the bird left the sea-of-grass. Find it you surely will — if it be there; which it more than likely will be. *Per contra*, when you hear the harsh "crz-z-z-h" of a soaring Nelson Sparrow, you just drop the nail-rake with which you have been dragging-up the dead grass in your search for that nest of the Yellow Rail; and begin to paw grass by the acre. Maybe you will find a nest of Nelson Sparrow, *sometime*; but flush a sitting bird you almost never will. Many a bird will leave the grass before your very feet; and you will paw grass with renewed ferocity. But you will always have just your pawing for your pains. (In other words, I am inclined to believe that the Nelson Sparrow always leaves her nest before an intruder is anywhere near; and that she never leaves the cover until very far away.) Now, will Mr. Abbott be complaisant enough to describe for us, in the pages of the Wilson Bulletin, the call of his "ventriloquistic" little friend; and will he send the nest of his finding to some critical student for inspection and verification?

A WINTER INVASION OF JASPER COUNTY, IOWA.

BY J. L. SLOANAKER.[1]

Seeing the following paragraph in an early December issue of the Newton Journal, I immediately took steps to ascertain the correctness of the report, which read as follows:

PRAIRIE CHICKENS ARE PLENTIFUL ON SKUNK BOTTOM.

"This year has brought along with its other innumerable blessings, a vast number of prairie chickens, such as has not

been seen in this vicinity in years. A few years ago large quantities of these birds were to be found almost at will in this section of the country, but as the community became more thickly settled the prairie chickens migrated to the north, where the country is more open and where, too, large quantities of grain are produced, which is the principal means of sustenance of the prairie chicken.

"But there has been a drought and poor crops in the northwest this year and this may be a possible explanation for the presence of so many chickens in this country again this year."

Having just left a hospital and being unable to take the cold, six-mile drive to the river bottom, I pressed the telephone into service, and was soon in touch with several reliable country friends of mine; and I also interviewed Rev. L. Bright of this city, who frequently hunts in that locality. They all agree that the said territory, that is the south Skunk River valley from Metz to Monroe, Jasper County, Iowa, was literally alive with prairie chickens during the month of December; that flocks of 500 arising from the cornfields were a common sight, and that old residents agree that the birds were more numerous than they had been for the past twenty years. Upon the upland premises near this city, small flocks are more numerous now than usual at this time of year.

The "Journal" is probably right as to the cause of this remarkable state of affairs. The Dakotas are the incubators for the prairie hen family. Here they breed in the long grass of sloughs and swales, and in the tall weeds along fences and roadsides. During harvest they fatten themselves in the broad wheatfields. But for the past two seasons the crops have been terribly short in the Dakotas, as well as in Kansas and Nebraska. The gleanings are insufficient. This forces the birds to migrate towards the south and east, where they naturally follow the many rivers that flow southeast across Iowa, stopping to glean in her many cornfields. So that instead of the usual number of flocks which come to us for the winter, we have them increased tenfold.

In the opinion of many the formerly abundant prairie

chicken is doomed to early extinction. In the summer of 1902 it was the most common bird by far in Aurora County, S. D. On the trip from Sioux City, Iowa, out through Mitchell to Chamberlain, S. D., I estimated that an average of twenty-five birds per mile were flushed by the train from the weeds along the track. The neighboring fields were alive with them. They were eaten by the farmers, both in and out of season. Many will testify as to their abundance in those years when the great land movement was taking place. The influx of hungry settlers, together with an occasional bad season, decimated their ranks; driven from pillar to post, with no friends, and insufficient food, — what else than extinction can be expected?

Among those who hold this view is Mr. F. C. Pellett, of Atlantic, Iowa, who writes me as follows:—

"A few years ago I saw considerable numbers of them in May in North Dakota, but this past summer, during a trip of several hundred miles overland in South Dakota, I was much surprised at the small number of the birds to be seen. The time was August, so that the young birds were mostly fledged and able to fly, and the trip extended over Tripp, Todd, Mellette, Stanley, Washbaugh, and Bennett Counties. Aside from Tripp and Stanley, the country is for the most part open prairie, with sparse settlement, where one would expect to find favorable conditions. Unless ways can be devised of rearing these birds in the domestic state the prairie hen in my opinion is doomed to early extinction."

I hope that others will report their observations through the columns of the "Bulletin." An enforced absence from the State during the next few months will prohibit me from learning the results of our strange invasion.

Newton, Iowa, Dec. 28, 1911.

OUR WINTER PENSIONERS.

Located in northeastern Iowa on the Mississippi river, with tree-covered bluffs all about us, making favorable conditions for birds, we have many such friends the year round. Even in the winter time, we are favored with those which are ordinarily found in a similar locality. However, this season we are especially favored, for, not only have we had the Hairy Woodpecker, Downy Woodpecker, Nuthatches, Chickadees, Juncoes, etc., but also several that are supposed to go to a milder climate when winter approaches.

A pair of Red-bellied Woodpeckers are daily feeding from the suet and corn placed on a nearby tree for their use. They often carry the kernels of corn and place in some carefully selected cache.

Three Kentucky Cardinals are frequently seen in our vicinity — one female alighting just outside the window one day and within three feet of it.

We have both seen and heard robins many times this winter.

A Carolina Wren flew into a neighbor's shed December 2. We were able to see it so closely that all the peculiar markings were noted, thus making an unquestioned identification.

Another day, a Winter Wren scolded us in true Jenny Wren fashion, from a house top.

When we consider the unusually cold season — the thermometer registered 38° below zero twice — it seems remarkable that so many birds of milder climate preferences should stay with us this year

We can readily account for the large number of pensioners at our board in that the ground is so well covered with snow that food is hard to get. They joyfully welcome our well filled table.

McGregor, Iowa. MARY E. HATCH.

A MICHIGAN RECORD FOR THE GANNET.

Sula bassana (Linn.).[1]

BY N. A. WOOD.

The A O. U. checklist gives the range of the Gannet as "Coasts of North Atlantic . . . . occurs off eastern United States in migration; casual north to Greenland; accidental in Indiana and Ontario."

Mr. A. W. Butler has called my attention to his Indiana record, which is as follows: "A few months ago I was taken to see a bird of this species in the store of Roman Eichstadt, Michigan City, Indiana. It was in immature fall plumage as determined by the U. S. Biological Survey, to which a photograph was sent. The bird was killed, according to the owner, on Lake Michigan, in November, 1904, about two miles from Michigan City." (Proc. Ind. Acad. Sci., 1906, pp. 149-150.)

The Ontario records are as follows: Shirleys Bay, Ottawa, Ontario, October 14, 1909 (Eifrig, Ottawa Naturalist, 1910, p. 158). Welland, Ontario, several miles from Lake Erie, November, 1907 (Fleming, Auk., 1908, p. 486). Hamilton, Ontario, "One found many years ago. Proc. Can. Inst., 1890, immature shot at Oshawa, Ontario, in 1862" (McIlwraith, Birds of Ontario, 2nd Ed., p. 56).

Eaton describes its occurrence in New York as follows: "On rare occasions it wanders to the interior of the State. At Canton, N. Y., December 10, 1879, a specimen was captured on the Grasse River; on Saratoga Lake, November 11, 1880." (Birds of New York, Mem. N. Y. State Museum, 12, p. 169.)

Up to the present time there have been no records for Michigan, although Gibbs in his "Annotated List of the Birds of Michigan" (Bull. U. S. Geol. and Geog. Survey of the Territories, Vol. V, 1879, p. 495) says: "Occasionally taken on the Great Lakes." On October 19, 1911, an immature female was collected at Walker Lake in Hamburg Township, Livingston County, Mich., by Mr. J. P. Case. Walker Lake is small, containing only about forty acres. When first seen

[1] From the University of Michigan Museum.

the bird was resting on the water with its head under its wing. The specimen was brought to the Museum on October 20, where it was identified, measured and skinned by the writer. It measured 37 inches in length, wing 19½ inches, tail 10 inches, extent of wing 72 inches. It was in poor flesh and weighed only five pounds, while the average weight as given by Audubon is about seven. On dissection the stomach was found to contain a sunfish eight inches in length and in nearly perfect condition, so that it was probably caught in Walker Lake or near by. The specimen is now in the University of Michigan Museum (No. 42189).

STATUS OF THE EUROPEAN STARLING IN ESSEX COUNTY, NEW JERSEY.

BY LOUIS S. KOHLER.

The European Starling (*Sturnus vulgaris*) which was successfully introduced into this country about 1890, first appeared in this county during the spring of 1903. The first flock of these exotics numbered about fifteen and were upon first sight mistaken for a small gathering of Red-winged Blackbirds (*Agelaius phoeniceus*). Their odd gyrations while in the air and methods of alighting upon the ground quickly corrected this erroneous idea and I immediately began investigating more closely and found them to be the species in question. About this same number remained in the neighborhood of a refuse pile on a farm in Bloomfield until the middle of July, when they disappeared and were not again seen until March 2d, 1904. At this time they came in a flock of about two hundred. This collection appeared intermittently at numerous places in Newark, East Orange and Bloomfield until May 1st, when they broke up into pairs and began seeking nesting places. The sites were principally in cupolas, on station poles of the telephone companies and in deserted woodpecker nest holes.

In 1905 they had increased to large numbers and were present in many places throughout the county. Up to this time they appeared very timid and kept well away from mankind and his habitations. I found four nests this year in nest holes of the woodpeckers, one under the cornice of the Bloomfield High School and about a dozen at various telephone station poles in and about Newark.

In 1906 and 1907 they had increased to surprisingly large numbers, and detached flocks were present throughout the year, especially about the garbage dumps. It has been my experience that these birds run the gulls a close second for honors as scavengers, and a sure place to always find them is near one of these garbage disposals.

In 1908 and 1909 they had further increased and began establishing permanent residence in bird boxes, nest holes, hollow trees, and on cornices and other accessible places on public buildings, and remained in the vicinity after once taking possession. In 1909 I first found them engaged in conflicts with *Sialia sialis* and *Colaptes a. luteus,* and this year four newly completed nests of the Flicker and three of the Bluebird were taken possession of by these interlopers.

Within ten feet of my study window these is located a nesting box which my father placed there twenty years ago for the wrens and bluebirds. This, however, was never occupied by any of our domestic birds, but was seized by the English Sparrows and held by them until 1908, when a pair of Starlings appeared and drove them away. The Starlings reared two broods during 1908, one in 1909 and two this year in this box. The birds have permanently established themselves and are about the box daily, only leaving when away feeding.

Articles have appeared in a number of our bird magazines for and against these birds and it is my opinion that at present their introduction has not reached a degree upon which may be based a conclusion as to whether they are beneficial or otherwise, but, from my own experience with these birds about my home, I am almost convinced that the time is not

far off when they will become as obnoxious as the omnipresent *Passer domesticus* is to us now.

They have several characteristics which in themselves are very admirable. Prominent among these are their usefulness as disposers of refuse and their pugnacity towards the exotic sparrows. On the other hand, they roost in the shade trees over the sidewalks, under cornices of buildings, and in many places which are detrimental to pedestrians' clothing and to the outward appearance of our buildings caused by the unsightly marks due to their excretions. In line with the above, they give voice to a monotonous wheezing call which lasts from sunrise to sunset and is very tiresome even to the most confirmed bird lover, not considering the enforced unsophisticated listener who will be only too apt to condemn them for this alone.

The next decade will, however, settle all controversies regarding these birds and positively prove their value to us. It is sincerely hoped that at the end of this period the balance will be "on the credit side of their account" as, aside from the above not over serious objections, they are a magnificent bird and one which the community at large may be proud to have in their midst.

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Edited by LYNDS JONES.

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Editorial

In Bulletin No. 57, page 110, there begins a list of "The Birds of Cleveland and Vicinity," unaccompanied by the author's name. Prof. Wells W. Cooke has called my attention to the fact that the author of this paper was Mr. L. M. Davies. With sincere apologies for the long delay in correcting this serious omission, the correction is here presented.

—o—

We are pleased to note that Mr. Frank S. Daggatt, who has returned to California after a residence in Chicago for several years, has recently been made Director of the Museum of History, Science and Art, Los Angeles. The establishment of this Museum has been brought about largely through the efforts of the members of the Cooper Ornithological Club, especially Mr. Howard Robertson. That Mr. Daggatt will make of the Museum an institution of the greatest value to that region those who know him will be

certain. We congratulate him upon his selection for this important position. Mr. Daggatt's new address is 2833 Menlo Avenue, Los Angeles, Calif.

—o—

We note with genuine regret the discontinuance of publication of "'The Journal of the Maine Ornithological Society." It speaks volumes for the vitality of that organization that it has been able to maintain a Journal of such high standard for thirteen years. It is a pleasure to know that the discontinuance of its official organ does not mean the disintegration of the organization. We congratulate the members of the Maine Ornithological Society on the splendid record which they have made, and wish them many more years of efficient work.

—o—

Whether or not the past severe winter has caused the death of many birds which spend the winter in the United States, particularly those which winter from Kentucky to the Gulf, will be made evident as migrations progress. It will therefore be more than usually interesting to study the migrations this spring season. The writer is fortunate in having a class of a dozen capable advanced students who will work on the migrations in the vicinity of Oberlin, having in mind particularly the relative abundance of each species as compared with former migration seasons. It is expected that fairly accurate work along this line can be done.

—o—

Calls for Bulletins Nos. 4, 5, 6, 7, 8 and 24, which have long been out of print, are so insistent that the advisibility of making accurate reprints of them again arises. Nos. 4 and 5 are both special numbers, and constitute Volume II of the New Series. The estimated cost of reprinting these two numbers would make it necessary to charge a dollar for the two numbers. Nos. 6, 7 and 8 are the first three numbers of Vol. III, New Series. These three, with No. 24, would need to cost a dollar. Thus the six numbers in reprint would need to cost two dollars. Ordered separately No. 4 would be 40 cents; No. 5, 70 cents; Nos. 6, 7, 8 and 24, 25 cents each. If enough advance orders are received to warrant it the reprints will be ordered.

The winter which is just passing in northern Ohio has been the most severe winter in a quarter of a century or more, yet the winter bird life has been unusual in the number of birds present, among which our Robin has been the most conspicuous. Crows have also been much more than usually common. In the Cadiz Republican there have been reports of great numbers of Robins all the winter. From Steubenville comes the report that during the most severe weather, when snow covered the ground, many Robins died of starvation. From many parts of the state, both east and west, reports have come in of great numbers of Robins all winter. The cause of this unusual occurrence seems hard to understand, particularly when it is remembered that the winter weather began in November with unseasonably cold weather and snow. The food supply seems to have been only normal. Unusual occurrences of this sort on the part of many species of birds needs investigation before we have any right to assume that it is capricious rather than governed by well defined natural factors.

General Notes

FLORIDA CAERULEA AGAIN TAKEN IN OHIO.

Since my last record of this bird in Ohio, July, 1902, in the Auk (Oct. 1902), nothing has been reported of the reoccurrence of this species in this state. On July 16, 1909, a young male in the white plumage was shot at the Loramie Reservoir and sent to me in the afternoon. The intense heat and the somewhat mangled condition of the bird had caused a good deal of trouble in preparing the skin, and it was only after long and careful work that I succeeded in saving it, it being now No. 784 of my collection. It gives me pleasure to re-record this bird in the State, and also to give the first record for it from middle western Ohio.

W. F. HENNINGER.

BOBWHITE (*Colinus virginianus virginianus*).

A gratifying increase in the numbers of the Bobwhite in past years was largely due, no doubt, to the protection the law afforded them; also because the neighboring farmers have better business than that of hunting birds. Some idea of the commonness the Bob-

white had attained in the summer of 1908 in this locality may be formed from the fact, that on every day in July, and on all but five in August the cocks frequently were heard calling, often three or four of them at the same time. Upon the advance of winter some coveys came close about the farm-house, in one case the Bobwhites ate with the chickens and roosted at night under evergreen trees nearby; in another place they fed with the pigs in the barnyard. In that winter and the following one, heavy snow-falls were blown into deep drifts that sealed the fate of many a Bobwhite; even the semi-domesticated ones disappeared. So widespread was their destruction that in the whole year of 1910, I only once saw and heard a Bobwhite. The same thing was true of the year 1911. Rarely a few of the species have been reported by others. The birds were not hunted by gunners. It is possible that some disease was responsible for a portion of the deaths, but there has been no evidence that such was the case.

National, Iowa. ALTHEA R. SHERMAN.

ROBIN (*Planesticus migratorius migratorius*).

Among the anomalies in bird history during the past winter has been the large number of Robins that have tarried in the Upper Mississippi Valley in spite of the unprecedented length and severity of the cold season. In northern Iowa the first six weeks of 1912 gave us twenty-six mornings of zero weather, or far below the zero mark. The mercury on two mornings fell to 30 and 36 degrees below zero, and on two others to 24 and 25 below, the average for the twenty-six mornings being 13 below. In the first sixteen days of January only once did the temperature rise above zero. This rigor of climate would seem sufficient to drive the Robins southward, but such was not the case. On December 28, with the mercury at 10 degrees below zero, a flock of two dozen or more were seen by the mail-carrier on Route No. 2 out of McGregor, Iowa, and on numerous days since then one or two of the species have been reportd from different places in northern Iowa and south-western Wisconsin; while from a point but forty miles south of St. Paul in Northfield, Minnesota, a friend says she has had a Robin boarder all winter.

Somewhat similar has been the case of the Goldfinch, a species that very rarely is seen here in the winter. Tree Sparrows and Juncos have remained in some numbers with us, whereas they usually move farther south during the coldest months of winter. The unparalleled abundance of the ragweed crop last summer provided food everywhere for these seed-eaters. On the other hand

few of the northern visitors have been seen: Red-polls but two or three times, and two flocks of Bohemian Waxwings.

National, Iowa. Althea R. Sherman.

BIRD NOTES FROM SUMMIT, NEW JERSEY.

December 14th, 1910—A song sparrow at my window, on the breakfast-shelf. First visitor of this name ever observed at this date.

December 15th—A hermit thrush feeding under my window. Certainly a strange winter visitor.

December 18th—For three days an oven-bird has been back and forth by my window. Cold intense.

December 24th—The hermit thrush under my window again today.

January 31st—Several little brown creepers; first seen this year.

February 1st—A phœbe bird calling.

February 2nd—Two phœebe birds on the trumpet vine. Sleet is over everything; cold intense; the sound of the bird-voices is pathetic.

February 13th—A song sparrow on woodbine. Mr. W. DeWitt Miller reports evening grosbeaks at Plainfield, N. J.

February 25th—A robin.

February 27th—Song birds everywhere today. "Peter, Peter, Peter"; sounds from the trees, and song sparrows are filling the air with songs.

January 30th, 1912—Thermometer registers sixteen below zero, but phœbe is forcibly telling his name.

February 10th—Early morning; thermometer at ten below; phœbe telling that he is there.

February 19th—Miss C. B. Thompson, of L. H. Nature League, Asbury Park, N. J., reports a song sparrow, a white-throated sparrow, and a flock of red-polls and goldfinches seen during the recent cold days.

Summit, New Jersey. Georgianna Klingle Holmes.

EGRETS AT HURON, OHIO.

On July 5, 1911, at 6:30 a. m., I was called to the telephone and informed that there was a white crane at the mouth of Old Woman Creek, three miles east of Huron, where the creek empties into Lake Erie. I caught the car and arrived there at 7 a. m., finding the bird standing at the edge of the marsh, knee deep in the water. It would walk around, at times darting its head beneath the surface as if feeding. From the pure light straw-yellow bill and black legs, I decided that it was an egret (*Herodias egretta*). It

seemed quite unafraid, as wagons and automobiles passed it within two hundred feet without scaring it. I was able to walk within one hundred and fifty feet of it and examine it thoroughly through my glasses. It was of pure white plumage, without plumes or tufts of any kind, quite slim and sleek in appearance, and somewhat smaller than the great blue heron. After watching it as long as I wished, I scared it up and it flew away in a westerly course along the lake.

During the middle and the latter part of July I had reports from several parties of a pair of white cranes up the Huron River. They were said sometimes to be alone and sometimes with great blue herons. I made several trips up trying to catch sight of them, but it was not until the afternoon of July 30 that I found them. While coming back from a trip up the river in a launch, two egrets flew by the boat and lit in a tree overhanging the river. They were similar to the one I had seen on July 5, but I was unable to approach as closely as before. After watching the boat for a short time they winged their way further up the river. This was the last seen or heard from them.

The only previous record in late years that I have been able to find for Ohio is the mention in Dawson's Birds of Ohio of one seen near Cincinnati in August, 1902. W. W. Cook, in his article, "Distribution of the American Egrets," issued in September of this year, also mentions the 1902 occurrence as being the only recent one.

Huron, Ohio. H. G. MORSE.

NOTES FROM HURON, OHIO.

On October 15, about 11 a. m., I observed a flock of 82 crows coming in toward the beach from the north. They reached the beach about one and one-half miles west of town and, after proceeding inland about half a mile, lit. They were flying about 200 feet high and when first seen were about half a mile out over the lake and coming from the direction of Point Pelee. The day was foggy early, then clearing, with little or no wind.

The eagles did not nest in the nest west of Rye Beach this year.

Green-winged teal were observed on March 19, one pair in Mud Brook; March 24, two males one mile up Huron River, and April 6, one male and two females in marsh on the Huron River.

One Golden-eye young male taken March 30 up the river.

Swamp sparrows were seen and heard singing from April 8 to August 2, then none were seen until September 20, and from then until October 29, but not singing.

Blue-winged warbler.—One seen May 6, about a half mile east of Rye Beach, in trees near the lake.

On August 21, when I reached the beach about a half mile west of town at 5:30 a. m., there was a flight of swallows passing east along the beach and extending in width from half a mile out over lake to a few rods inland. Most of them were flying low. Different counts showed that about 9000 passed from the time I reached there at 5:30 until the flight abruptly ended at 6:15. They were chiefly bank, with a scattering of barn swallows.

Dickcissel.—From two to six individuals were seen at nearly every large pasture or hay field in any direction from town. The last singing was heard on July 16, and the last birds seen were on August 16.

In addition to the egret seen at Old Woman Creek, four miles east of here, there were two more, or the same one, with a companion, seen up the Huron River on July 30. They were up there for about two weeks, sometimes with great blue herons, but more frequently alone. The bright yellow bill, pure white plumage and black, not dusky legs, make me think that they were of this species.

One curlew, Hudsonian or long-billed, was seen on August 3 on the beach one mile west of town.

A flight of night hawks was seen on September 1. There were about twenty individuals circling about town. I had reports of a large number around beach and over the lake west of town. A few were seen for several days thereafter.

A flock of Cape May warblers was observed around our house in town from September 10 to September 19, and also one or two were seen on several occasions in other places.

One red-poll male was seen November 19 one and one-half miles west of Huron on brush heap against lake bank.

H. G. Morse.

Notes from Sioux Falls, South Dakota (Spring of 1911). On May 14th I had the good fortune to find a Stilt Sandpiper (Micropalama himantopus) in a slough about eight miles south-west of Sioux Falls.

June 11th was given over to an all-day bird study. The start was at 7 a. m. and the close 8 p. m. The study included woods along Big Sioux River and Skunk Creek, fields, prairies, meadows and a couple of small, nearly dried up sloughs. The sky was overcast most of the time, and an awful wind from the north-west was

blowing steady all day long. The birds which were common in and around the sloughs were Black Tern, Blue-winged Teal, Shoveller, Lesser Scaup Duck, Bittern, Green Heron, Wilson's Phalarope, Pectoral Sandpiper, Killdeer, and less numerous here also were Mallard, 3 seen, Coot, 2 or 3, Lesser Yellow-legs, 2, Baird's Sandpiper, 1, along the streams Hooded Merganser 14 seen on the river, Green Heron, common along Skunk Creek, Spotted Sandpiper common along the river, Black-crowned Night Heron, common. Upland Plover was common on the prairies, only 2 Bobwhites and 2 Prairie Chickens. Mourning Dove was common, one Marsh Hawk, Yellow-billed Cuckoo common, Black-billed Cuckoo not so common, Belted Kingfisher, one each of Hairy and Downy Woodpecker, Flicker common, Chimney Swift common in the city, Kingbird and Arkansas Kingbird both common, one Traill's Flycatcher, a few Prairie Horned Larks and Blue Jays, Bobolinks and Cowbirds common on the prairies, Yellow-headed Blackbird very common around the sloughs, Red-winged Blackbird, western Meadowlark and Bronzed Grackle common, one Baltimore Oriole, very few Grasshopper Sparrows, Song Sparrow and Dickcissel common, Field Sparrow and Towhee heard, Rose-breasted Grosbeak common, one Lark Bunting, Purple Martin common in the city, Barn and Bank Swallows common, and Rough-winged Swallow fairly common along the river, White-rumped Shrike fairly common, Red-eyed and Warbling Vireos heard, Yellow Warbler and Western Yellow-throat common, Catbird very common, Brown Thresher and Western House Wren common, one Chickadee, Wood and Wilson's Thrush heard, Robin and Bluebird common.

ADRIAN LARSON.

THE EVENING GROSBEAK AT CAMBRIDGE, OHIO.

On February 26, 1911, I saw one pair feeding under the pines, with the juncos and tree sparrows.

After watching them for some time, they flew into the trees, and I did not again see them, until April 8.

They evidently were there all the time, but I was not yet familiar enough with the call note and rattling cry to follow them up. After the 8th they could be found at any time, always very close together, until April 30, when the female disappeared, the male remaining until May 3, but he no longer called and was perfectly silent and moody.

I feared the cats had taken the female, and would like to know if, in the flock of six, which you record from Oberlin, the females disappeared first.

I am certain there was only one pair and they were always found within two or three hundred feet of the spot where first seen, and allowed close observation.

Cambridge, Ohio. Mrs. Robert T. Scott.

PLATFORMS TO BIRD-HOUSES.

Many writers on nature study topics have told us that in making a house for birds no platform should be put on under the entrance, as a house with no platform will not be molested by English Sparrows.

Such a statement is wholly unwarranted by the facts. The writer hereof has had upwards of a dozen bird-houses for several years past, some with and some without platforms and close observation leads him to conclude that a sparrow shows no preference on account of a platform — that he will enter one with no platform just as freely as though it had one.

I prefer a house with a platform of liberal size, attached an inch or two below the entrance, as it is a great convenience for young birds to go out and in before they are old enough to leave the nest. Then, too, it enables both parents to sit on their doorstep at one time, and thus better enjoy their home.

A house for a wren should never be without a platform, as in carrying in sticks for the nest foundation the bird nearly always finds it necessary to lay each stick down and get hold of it closer to the end in order to get it through the door, and for this a platform of liberal size is needed.

Such conveniences are enjoyed by birds as much as by people. The better they are pleased with the quarters we provide the more apt they are to return to the same premises the next spring.

North East, Pa., Nov. 16, 1911. L. B. C.

January 25, 1912.

Editor, Wilson Bulletin:—Another spring season is approaching with its opportunities for bird study. Photography has become a very important adjunct to the equipment of the field ornithologist. The writer does not believe it is necessary, or wise, to indiscriminately encourage the amateur to enter the field of bird-photography, but it is desirable that those who do attempt it shall be provided with the conveniences which will increase the probability of success.

Most of the apparatus needed for this work is now on the market, but, so far as the writer can learn, a satisfactory camera stand has not been put out. The worker has been compelled to

devise and manufacture his own, and some of them have been described in the ornithological literature. Such a stand must be light and attachable to a strong tripod or other support; it must be adjustable, so that the camera may be placed at any angle and held rigid.

At least two such stands have been described within the last year. Both have been designed for botanical work, but would serve the ornithologist equally well. In *Knowledge*, for October, 1911, Mr. Somerville Hastings describes and illustrates one, a "tilting table," as he calls it. In the *Botanical Gazette*, for March, 1911, Mr. Harry B. Shaw describes and illustrates another one along similar lines.

Shaw's apparatus, however, permits a much wider range of adjustment, and is longer and much better adapted for a long-focus camera. As an *adjustable* stand it is far ahead of anything so far offered by the large manufacturers of photographic apparatus. These stands can be secured, built to order, from Mr. Frederick Carl, an expert model-maker (address, 623 H. Street, N. W., Washington, D. C.) at a cost of from $12 to $15. The writer obtained one toward the end of last season, and, although it was too late to put it to much use, it is thoroughly satisfactory in its mechanism.

T. C. STEPHENS.

Publications Reviewed

Birds of Arkansas. By Arthur H. Howell. Bull. No. 38. Biological Survey, 1911. 100 pp.: 1 map, 6 plates, 4 text cuts.

This is a very welcome addition to faunal literature from a region which has been little known. In the words of Mr. Henshaw, Chief of the Biological Survey, "This report fills an important gap in our knowledge of the avifauna of the Mississippi Valley." Following a general survey of the state, with its "Physical Features" and "Life Zones," a general discussion of the "Economic Value of Birds," the "Game Resources and Legislation," "Sources of Information," and a statement of the "Number of Species" actually recorded, which is 255, and a statement that probably 300 species and subspecies occur, the "List of Species" is given. Under this heading some 35 species are given in parenthesis, which should certainly be found in the state, but which the limited number of observers has not made it possible to record. The most notable contribution to the ornithology of the state in recent years has been made by Mrs. L. M. Stephenson, of Helena. Mr. Howell made an extended survey of the state from April 28

to July, 1910. It seems to us unfortunate that the A. O. U. nomenclature should not have been consistently followed. Fortunately there is no doubt about what form is meant in any case because both the vernacular and scientific names are employed. For instance, while one might be in doubt about the form intended by the use of *Junco hyemalis* the doubt is at once dispelled when we read "Slate-colored Junco," the vernacular name being as distinctive as the repetition of the *hyemalis* in the scientific name. The report is most timely and welcome. L. J.

A Biological Survey of the Sand Dune Region on the South Shore of Saginaw Bay, Michigan. Prepared under the direction of Alexander G. Ruthven, Chief Field Naturalist, Michigan Geological and Biological Survey. Publication 4, Biological Series 2. 1911. 347 pp., 1 map; XIX plates.

The part of this report relating to the birds was prepared by Norman A. Wood and Frederick Gaige. The time spent in the region covered was from June 13 to August 27, 1908. "It may be seen from this itinery that three distinct localities were studied: the sand region between Sand Point and Hat Point, Stony Island, and the clay country at Rush Lake. In the sand region the habitat conditions are dominated by the sandy soil. The ridges are covered with open growths of jack pine and the swamps with dense growth of maple, cedar, etc., or with grasses and sedges. The clay country at Rush Lake, on the other hand, is largely taken up with open fields." The listed species are 128 in number, the most of them with copious and interesting annotations. 83 are given as breeding in the region, with four additional species as doubtful breeders.

The statement is made that migrants began to appear about August 1. This seems strange when we remember that at Point Pelee, Pelee Island, and Cedar Point, the migrations were well advanced by that time, the first migrating Shore Birds having been recorded as early as the first of July. The later beginning here on the east side of Saginaw Bay may probably be accounted for by a large body of water to the north and east and the rather isolated position of this land mass.

These detailed studies which the University of Michigan is undertaking are welcome additions to our knowledge of living forms. L. J.

The Home-life of the Osprey. Photographed and Described by Clinton G. Abbott, B.A., Associate of the American Ornithologists' Union, with some Photographs by Howard H. Cleaves, As-

sociate of the American Ornithologists' Union. With Thirty-two Mounted Plates. London. Weatherby & Co., 326 High Holborn W. C. 1911. Small 4to. 54 pp. 32 plates. For sale by Brentano and by Forest and Stream Pub. Co.

The studies upon which this volume are based were largely conducted on Gardiner's Island, where this regal bird is not only a familiar object but unwary as well. The value of the studies is greatly enhanced by the admirable half-tone prints accompanying, and their manner of arrangement. Studies of this sort are needed for practically all of our birds. We welcome it as a contribution to our knowledge of one of our most interesting birds of prey. L. J.

University of California Publications in Zoölogy. There are before us and unacknowledged a number of contributions to ornithological literature which have been issued under this caption. They are here presented in the order of their publication.

Vol. 5, No. 5, pp. 275-281. 1 text-figure. December 31, 1909. A New Cowbird of the Genus Molothrus with a note on the probable genetic relationships of the North American forms. By Joseph Grinnell. The new form is described as Molothrus ater artemisiae, Nevada Cowbird. The range is given as practically coincident with the range of the sage-brush (Artemisia tridentata)—"Upper Sonoran and Transition zones of the Great Basin region of the western United States."

Vol. 5, Nos. 8, 9, and 10, pp. 307-320, Pl. 30. February 21, 1910. Two Heretofore Unnamed Wrens of the Genus Thryomanes. By Joseph Grinnell. The new forms being described as Thryomanes bewicki marinensis, Nicasion Wren, whose range is "The humid coast belt north of the Golden Gate and San Francisco Bay, in Marin and Sonoma Counties"; and Thryomanes bewicki catalinae, Catalina Island Wren, of Santa Catalina Island.

The Savannah Sparrow of the Great Basis. By Joseph Grinnell. This is described as a new species under the name Passerculus sandwichensis nevadensis, Nevada Savana Sparrow.

The third number is concerned with "A Second Record of the Spotted Bat (Euderma maculatum) for California"; also by Joseph Grinnell.

Vol. 5, Nos. 11 and 12, pp. 321-428, Pls. 31-34, 9 text figs. March 1910.

Mammals of the 1908 Alexander Alaska Expedition, with descriptions of the localities visited and notes on the flora of the Prince William Sound Region. By Edmund Heller.

Birds of the 1908 Alexander Alaska Expedition, with a note on the avifaunal relationships of the Prince William Sound District. By Joseph Grinnell. The Prince William Sound Region is the scene of the studies upon which this paper is based. Included among the 89 forms listed as having been found are six new subspecies as follows: Canachites canadensis atratus, Valdez Spruce Grouse; Lagopus rupestris kelloggae, Montague Rock Ptarmigan; Ceryl alcyon caurina, Northwestern Belted Kingfisher, Dryobates pubescens glacialis, Valdez Downy Woodpecker; Passerella iliaca sinuosa, Valdez Fox Sparrow; Penthestes rufescens vivax, Valdez Chestnut-sided Chickadee. Copious notes accompany the descriptions of the new sub-species and the mention of each other species. The paper closes with a discussion of the "Composition of the Prince William Sound Avafauna, Discussion of Its Origin," and of "Melanism in the Endemic Species."

Vol. 6, No. 13, pp. 285-312. December 28, 1910. Significance of White Markings in the Birds of the Order Passeriformes. By Henry Chester Tracy. This paper was reviewed on page 137 of Vol. XXIII, The Wilson Bulletin.

Vol. 7, No. 3, pp. 173-177. February 18, 1911. An apparent Hybrid in the Genus Dendroica. By Walter P. Taylor. The probably hybird discribed here is between Dendroica coronata and D. audubonii.

Vol. 7, No. 4, pp. 179-195. February 18, 1911. The Linnet of the Hawaiian Islands; A Problem in Speciation. By Joseph Grinnell. The case here discussed is one of the reduction of the intensity of color from crimson through orange to yellow, due, the author concluded, to a change in habitat and to insularity, the insularity doubtless resulting in inbreeding and consequent "deficiency in capacity" to produce the more intense color.

Vol. 7, No. 5, pp. 197, 199. February 18, 1911. The Modesto Song Sparrow. By Joseph Grinnell. Melospiza melodia mailliardi. A new subspecies described.

Vol. 7, No. 8, pp. 309-311. August 24, 1911. Description of a New Spotted Towhee from the Great Basin. By Joseph Grinnell. Pipilo maculatus curtatus, Nevada Towhee. Another new subspecies described.

Val. 7, No. 9, pp. 313-318. Description of a New Hairy Woodpecker from South-eastern Alaska. By H. S. Swarth. Dryobates villosus sitkensis, Sitka Hairy Woodpecker. Range: South-eastern Alaska.

Vol. 7, No. 10, pp. 319, 436, pls. 7-12. February 14, 1912. Field Notes on Amphibians, Reptiles and Birds of Northern Humboldt County, Nevada. By Walter P. Taylor. Four Amphibians, eleven

Reptiles and 103 Birds are here recorded, many of them accompanied with copious annotations. We notice with some surprise that the word America preceeds Coot, Barn Swallaw and also Magpie. In the last case it seems more defensible in order to distinguish it from the Yellow-billed Magpie. We also note the use of the word Eastern in reference to Tyrannus tyrannus, which seems to us entirely proper when Tyrannus verticalis is called Western Kingbird.

Vol. 10, No. 1, pp. 1-124. pls. 1-14. February 13, 1912. Report on collection of Birds and Mammals from Vancouver Island. By Harry S. Swarth. The collection was made by the author with the assistance of Mr. E. Despard. The collecting begin on April 24 and closed on September 28. 111 birds and 20 mammals are here recorded, accompanied by interesting and valuable annotations. Mr. Swarth is an adept at making collections and carrying away facts relating to the lives of animals.

This series of papers from the Zoölogical department of the University of California indicates in an incomplete and feeble way what it is doing toward securing an accurate picture of the animal life of that incomparable coast region. If every state university was as wide awake to its possibilities in the same line of work the time would not be long until we would have at hand the preliminary surveys of the animals of the whole nation as a basis for the more intensive studies which we may see just ahead. L. J.

SMITHSONIAN MISCELLANEOUS COLLECTIONS. Volume 56.

No. 25. Descriptions of Seven New African Grass-Warblers of the Genus Cisticola. By Edgar A. Mearns, Associate in Zoölogy, U. S. National Museum. "This paper is the fifteenth dealing with the results of the Smithsonian African Expedition, under the direction of Col. Theodore Roosevelt." The paper is concerned only with descriptions of the new forms, two of which are full species.

No. 27. A New Kingfisher from Panama. By E. A. Goldman. This new form is appropriately named Ceryle americana isthmica, since the type is from Rio Indio (near Gatun), Canal Zone, Panama.

No. 28. Description of a New Species of Sun-bird, Helionympha raineyi, from British East Africa. By Edgar A. Mearns.

No. 30. A New Subspecies of Ptarmigan from the Aleutian Islands. By A. C. Bent. This is described as Lagopus rupestris sanfordi, Tanaga Ptarmigan collected at Tanaga Island, Alaska during Mr. Bent's 1911 expedition to the Aleutian Islands.

No. 32. Notes On Birds Observed During a Brief Visit to the

Aleutian Islands, and Behring Sea in 1911. By A. C. Bent. "We sailed from Seattle on May 19, and took the inside passage north to Ketchikan, where we remained a few days to take on some spar buoys, and from there we sailed out through Dixon Entrance and nearly west across the Pacific Ocean to Unimak Pass. We entered the Pass on June 4, anchored for the night at Akun Island and reached Unalaska on June 5. After discharging our cargo and coaling, we started on the western trip and among the Aleutian Islands on June 10, with orders for the *Tahoma* to return to Unalaska on July 1. This gave us less than three weeks in which to explore over eight hundred miles of difficult islands, an undertaking for which three months would have been hardly time enough. We cruised the whole length of the chain, however, and landd on Stka Kiska, Attu, Tanaga, and Adak Islands, besides visiting the western end of Unalaska Island, landing at Chernofski." The "Birds Noted in the Aleutian Islands in June, 1911," comprise a list of 64 species and subspecies, and the "Birds Noted in Behring Sea in July, 1911," 17 species and 5 subspecies. The paper contains many annotations of interest. It seems a pity that more time could not have been devoted to this little known region.

No. 37. Descriptions of Two New Species of Nun Birds from Panama. By E. W. Nelson. These two species were collected on Cerro Azul, Panama (altitude 800 feet), in March, 1911, by Mr. E. A. Goldman. Only a single specimen of each was found.

L. J.

Instinct and Intelligence in Birds. By Professor Francis H. Herrick. Reprinted from the Popular Science Monthly, June, July and August, 1910. Pp. 532-558, 82-97, 122-141. "The instincts of birds may be clased in a general way as (1) continuous instincts, which are needed for the preservation of the individual, such as preying, flight, concealment and fear, however subject to modification through experience, and (2) the cyclical instincts, which are necessary for the preservation of the race."

The cyclical instincts, which of necessity are discontinuous, are given as follows:

1. Migration to Breeding Area;
2. Courtship and Mating;
3. Nest Building;
4. Laying Eggs in Nest;
5. Incubation and care of eggs;
6. Care of Young in Nest;
7. Care of Young out of Nest.;
8. Migration to Feeding Area.

The question as to what causes bring about the recurrence of these cyclical instincts is not discussed. Here is a fruitful field for investigation. It is upon the proper attunement of these cyclical instincts that the continuance of the species depends. Thus

the lack of such attunement in the Cowbird and the European Cuckoo is given as the cause of the parasitic habits of these birds. But in these cases there seems to be no evidence that the nest building member of the cycle is present.

Professor Herrick states that "the whole fabric of instinctive life is subject at nearly every step to the modifying influence of intelligence," yet the discussion seems to be based on the assumption that intelligence at most plays a very small if any part during the period of the bird's life when the cyclical instincts hold sway.

The discussion is timely, interesting, and valuable, and should arrest the attention of all students of birds. L. J.

Life and Behavior of the Cuckoo. By Francis H. Herrick. 23 Figs. Reprint from the Journal of Experimental Zoölogy. Vol. IX, No. 1, Sept. 191, pp. 171-233.

The author was, of necessity, largely confined to the work and writings of others for information concerning the European cuckoo (Cuculus canorus), but his own studies of the behavior of the Black-billed Cuckoo "at Northfield, New Hampshire, in July and August, 1908 and 1909," furnished the material upon which the discussion is really based. That the discussion is fairly exhaustive for the breeding season is sufficiently attested by the thirteen main heads in the table of contents, two sub-heads under the topic hatching and six sub-heads under the record of nest life and behavior. Without going into details of the paper it may be enough to briefly summarize the conclusions reached (pp. 232-233). 1. "Cuckoos do not display more intelligence than many other species of birds, the extraordinary acts which many of them perform being sufficiently accounted for by the possession of modified and highly specialized instincts." 2. "The origin of parasitism in many of the Old World cuckoos and American cowbirds is to be sought in the disturbance of the cyclical instincts," particularly in the attunement of egg-laying to nest-building. 3. The irregularity of egg production in the two common American cuckoos might tend toward parsitism were it not for the fact that the young bird leaves the nest when seven days old. 4. A contact stimulus of a disagreeable kind is given as the reason for the eviction instinct of certain Old World cuckoos. 5. "The American black-billed cuckoo is born with rudimentary down which never unfolds. It has strong grasping reflexes, and is remarkably enduring. It can hold by one leg or toe, for a surprising length of time, and draw itself up to the perch with one or both feet, at birth or shortly

after, powers which no other birds in this part of the world are known to display, and which must be regarded as preparatory to the climbing stage soon to follow." 6. The development of the quill stage of the definitive feathers and the preening instinct on the sixth day results in the unfolding of the larger feathers centripetally from their tips on that day. 7. "Fear is attuned to the climbing stage and not to flight . . . . and matures with comparative suddenness on the sixth day, or shortly before the bird is ready to climb." 8. "Parental instincts are as strong in the American cuckoos as in thrushes or in passerine birds generally, and there is more indication of retrogression to parasitism in the former than in the latter." 9. The nests are adequate. 10. "When disturbed in its nest-activities, the black-bill has been known to transfer its eggs to a new nest of its own, an action which strongly suggests the practice of the European cuckoo of carrying its laid egg in the bill to the nest of a nurse." 11. "The American species occasionally 'exchange' eggs, or lay in other birds' nests, and when so doing the black-bill has been known to struggle for possession of the stolen nest. Since similar actions have been repeatedly observed in one or another degree, in numerous species, in which no suspicion of parasitism exists, and in all parts of the world, they must be ascribed, in addition to the reasons given above, not to "stupidity or inadventance," or "a tendency toward parasitism," but to temporary irregularities in the rythm of the reproductive cycle.

This paper represents the sort of intensive study which we must more and more be looking toward if our knowledge of the birds is to progress at anywhere near the same rate in the next score of years that it has in the last score. We particularly commend the field studies in the natural environment of the birds instead of laboratory studies under control. The latter has its important place, of course, but the former has been too much replaced by the latter up to the present time.

On the Olfactory Organs and the Sense of Smell in Birds. By R. M. Stron. From the Hull Zoölogical Laboratory, University of Chicago. Reprinted from The Journal of Morphology, Vol. 22, No. 3, September, 1911, pp. 619-660. 4 text-figs., 2 pls.

This paper is the result of a series of carefully conducted experiments with ring doves placed in a labyrinth where various odors were employed to test their olfactory sense, supplemented by studies of and dissections of the olfactory lobes and nerves and the nasal chambers, on the part of the author, and an exhaustive

review of the work already done by others. "The author agrees with Edinger ('08a), that a sense of smell should be expected to occur in birds," and "with Turner ('91), that the great reduction of the olfactory organs which has occurred in the higher birds would seem to indicate that the development of keen vision in birds in being accompanied by a degeneration of the olfactory sense which may result in its total loss, eventually." "In the author's judgment, the results of the ring dove experiments warrant the conclusion that the behavior of some birds at least may be affected by olfactory stimuli." The paper thus furnishes a refutation of the contention that birds have no sense of smell, but it leaves open the question as to how large a part this sense plays in the life of the bird. L. J.

Figure 1. The blind in position at the thrasher nest. The nest is midway between the blind and the box to the left. The slit in the blind is the opening through which the birds were watched.

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A STUDY OF THE HOME LIFE OF THE BROWN THRASHER, *TOXOSTOMA RUFUM.* (Linn.)

BY IRA N. GABRIELSON.

Introduction.

The observations on which this paper is based were made during the summer session, 1911, of the Iowa Lakeside Laboratory, on Lake Okoboji, Iowa. The plan followed was that first successfuly employed by Prof. F. H. Herrick, namely, of erecting a blind at the nest and studying the birds at close range. The aim of the work was to record the feeding activity for several consecutive days, particularly from the economic standpoint.

The problem was suggested by Prof. T. C. Stephens, of Morningside College, to whom I wish to express my gratitude for much help and many valuable suggestions in carrying on the work and in preparing this report. I also wish to thank Prof. T. H. MacBride for the opportunity of attending this session of the Laboratory. The plan could not have been carried out without the help given by the workers in the Laboratory, and to the following persons particularly my thanks are due for assistance in carrying out the study: Miss Hochstetler, Miss Mae Gittens, Miss Gladys Price, Miss Mildred Sykes, Miss Idylene Tovey, Miss Harriet Wilson, Miss Alice Yocum, and Mr. A. H. Schatz. My thanks are due Miss Pearl A. Woodford, of Morningside College, for help in preparing this paper.

The blind used was very simple and one easily made. It was constructed of a sign umbrella held in position by three guy ropes. The wall of muslin dyed grey was in one piece and was fastened over the ends of the umbrella ribs by a draw string. The bottom was staked down and the blind was ready for use. Figure 1 is a photograph of the blind as it appeared at the thrasher nest.

The nest chosen for study was that of a Brown Thrasher (*Toxostoma rufum*). It was built on the ground, which is rather an unusual nesting site for this species. The grass had been quite long, but had been cut, leaving the nest in a very exposed position. When first discovered on June 17, it contained four young, not more than twenty-four hours old, and one addled egg. The blind was placed in position on the morning of the 23d. Within an hour the parent birds had become completely reconciled to its presence and were using the guy ropes for a perch. Soon after the study was commenced it was noticed that one of the birds had a conspicuous white spot on the back of the head and, after watching an hour or two, it was decided that this bird was the female. This white mark furnished a sure means of determining the sex of the parent feeding. It is visible in figure 2 and 3.

TABLE I.

The data in Table I is simply a condensed form of the records of feeding as they were taken in the blind. The first column contains the number of the feeding (all the feedings from the first to the last day of observation are numbered consecutively). The second column contains the sex of the parent feeding; the third the time of day; the fourth the character and amount of food; the fifth the nestling receiving the food; and the last one the data on sanitation.

Data for June 23, 1911. From 12:45 to 5:45 p. m.

No.	Sex.	Time.	Food.	Young fed.	Excreta.
1.	m	12:45	4 white moths, 2 small insects.		
2.	f	12:48	Did not feed.		
3.	m	12:50	1 grasshopper.		
4.	f	12:54	2 grasshoppers.		
5.	f	12:55	1 grasshopper.		
6.	m	12:59	1 grasshopper, several (2) crickets.		devoured.
7	f	1:06	1 mayfly, 5 white moths.		

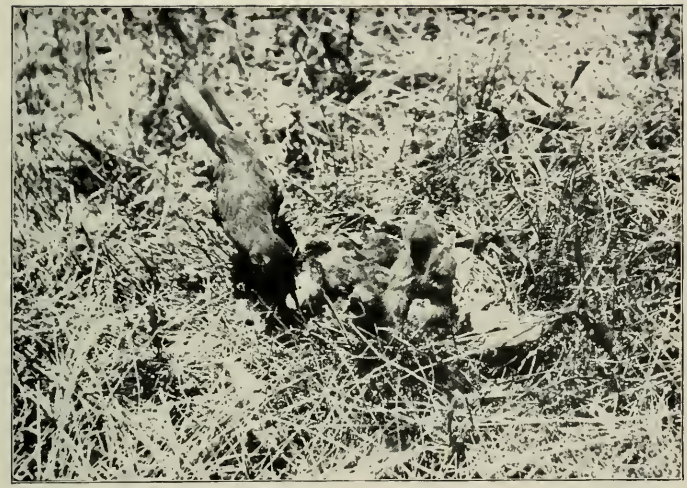

Figure 2. The female feeding the young. The white spot on the head is visible in this figure.

No.	Sex.	Time.	Food.	Young fed.	Excreta.
8.	f	1:25	1 maybeetle.		
9.	f	1:48	1 grasshopper.		
10.	m	1:49	2 unknown bugs.		
11.	f	1:53	1 grasshopper.		devoured.
12.	f	1:55	1 white moth.		
13.	m	1:56	3 white moths.		
14.	f	2:00	1 maybeetle.		
15.	f	2:10	2 white moths, 1 grey moth.		
16.	f	2:23	1 green worm.		
17.	f	2:26	2 grasshoppers.		
18.	m	2:30	2 grasshoppers.		devoured.
19.	m	2:34	1 unknown.		
20.	f	2:34	1 cutworm.		devoured.
21.	m	2:45	3 green worms.		
22.	m	2:55	1 cutworm, 1 grasshopper.		
23.	f	3:10	1 white moth, 1 larva.		
24.	f	3:16	1 cutworm.		
25.	m	3:21	1 grasshopper.		devoured.
26.	m	3:25	1 dragonfly.		
27.	m	3:35	1 cutworm, 1 white moth.		devoured.
28.	f	3:36	1 butterfly.		
29.	m	3:40	3 white moths, 1 grasshopper.		
30.	m	3:48	1 brown larva.		
31.	f	3:50	1 centipede.		
32.	f	3:53	1 cutworm.		
33.	f	4:04	1 grasshopper.		
34.	f	4:10	1 cutworm.		
35.	f	4:15	3 green worms, 1 cutworm, 1 fly.		
36.	m	4:19	1 centipede, 1 cutworm.		
37.	f	4:25	1 large green worm.		devoured.
38.	f	4:30	1 mayfly.		devoured.
39.	m	4:31	1 large brown moth.		
40.	f	4:32	1 large white moth, 1 cutworm.		
41.	f	4:38	2 grasshoppers, 1 moth.		
42.	m	4:45	1 large brown moth.		
43.	m	4:47	4 grasshoppers.		devoured.
44.	f	4:48	1 mayfly.		
45.	f	4:55	2 mayflies.		
46.	m	4:58	1 cutworm, 1 spider.		
47.	m	5:05	2 grasshoppers.		
48.	m	5:10	1 grasshopper.		
49.	f	5:11	1 beetle.		
50.	f	5:13	2 grasshoppers.		
51.	m	5:15	1 mayfly, 1 moth.		
52.	f	5:19	2 grasshoppers.		
53.	m	5:19	1 spider.		devoured.
54.	f	5:22	1 grasshopper.		
55.	m	5:23	2 moths.		devoured.
56.	f	5:35	1 grasshopper, 1 cutworm, 1 unknown.		
57.	m	5:40	1 grasshopper.		devoured.
58.	f	5:42	1 cutworm.		

Data for June 24, 1911. From 12:45 to 6:00 p. m.

No.	Sex.	Time.	Food.	Young fed.	Excreta.
59.	f	12:50	3 grasshoppers.		
60.	f	12:58	2 white moths.		
61.	m	1:01	1 grasshopper.		
62.	m	1:09	2 mayflies.		
63.	f	1:10	2 cutworms.		devoured.
64.	m	1:13	1 grasshopper.		
65.	f	1:28	2 mayflies.		
66.	m	1:49	1 grasshopper.		
67.	f	1:52	1 grasshopper, 1 mayfly.		
68.	f	1:55	1 grasshopper.		
69.	m	1:56	2 green worms.		
70.	f	1:57	1 grasshopper.		
71.	f	2:04	1 cutworm.		
72.	f	2:05	1 mayfly.		
73.	f	2:07	2 beetles.		
74.	m	2:43	1 mayfly, 1 grasshopper, 1 green worm.		
75.	f	2:16	1 grasshopper.		
76.	m	2:19	1 beetle.		devoured.
77.	m	2:24	1 grasshopper.		
78.	f	2:29	1 grasshopper.		
79.	f	2:30	1 mayfly.		
80.	f	2:32	1 beetle.		
81.	f	2:34	1 grasshopper.		
82.	m	2:35	2 mayflies.		
83.	m	2:38	1 grasshopper.		devoured.
84.	f	2:41	1 grasshopper.		
85.	f	2:43	1 mayfly.		
86.	f	2:45	2 grasshoppers.		
87.	f	2:55	2 white moths.		
88.	m	2:55	1 grasshopper.		
89.	f	2:56	1 grasshopper.		
90.	f	3:04	2 grasshoppers.		carried away.
91.	f	3:12	1 unknown worm.		
92.	f	3:13	2 white moths.		
93.	f	3:15	2 mayflies, 1 cutworm.		
94.	f	3:28	2 grasshoppers.		
95.	m	3:32	1 mayfly, 1 grasshopper.		devoured.
96.	m	4:03	2 white moths.		
97.	f	4:03	1 grasshopper, 1 green worm.		
98.	f	4:07	1 grasshopper.		devoured.
99.	f	4:17	2 grasshoppers.		
100.	f	4:18	1 white moth.		
101.	f	4:22	2 mayflies.		
102.	f	4:25	1 mayfly, 1 beetle.		devoured.
103.	m	4:26	1 grasshopper.		carried away.
104.	f	4:30	1 mayfly.		
105.	m	4:36	1 mayfly, 1 grasshopper.		
106.	m	4:47	1 mayfly.		
107.	m	4:54	2 mayflies.		
108.	m	5:00	1 grasshopper.		
109.	f	5:00	2 grasshoppers.		

No.	Sex.	Time.	Food.	Young fed.	Excreta.
110.	m	5:01	2 mayflies.		
111.	m	5:02	1 mayfly,.		
112.	f	5:07	1 mayfly, 1 cutworm, 1 grasshopper.		
113.	m	5:09	1 grasshopper.		
114.	f	5:10	1 white moth.		
115.	m	5:11	1 mayfly.		
116.	m	5:13	1 green worm.		
117.	f	5:19	1 white moth.		
118.	m	5:26	1 grasshopper, 1 beetle, 1 white moth, 1 worm.		
119.	f	5:26	2 grasshoppers.		
120.	m	5:32	1 grasshopper.		
121.	f	5:35	1 fly.		
122.	m	5:36	1 worm.		
123.	f	5:41	1 white moth, 1 spider.		
124.	m	5:42	1 earthworm.		devoured.
125.	f	5:46	1 grassshopper.		
126.	f	5:55	1 spider.		
			Data for June 26, 1911. From 12:45 to 8:40 p. m.		
127.	m	12:55	3 mayflies.		
128.	f	12:58	1 grasshopper.		
129.	m	1:03	1 grasshopper.		carried away.
130.	f	1:03	1 grasshopper.		
131.	m	1:05	1 grasshopper.		carried away.
132.	f	1:07	1 grasshopper.		
133.	m	1:07	1 grasshopper.		
134.	m	1:16	1 grasshopper.		carried away.
135.	f	1:16	1 grasshopper.		carried away.
136.	m	1:24	1 grasshopper.		
137.	f	1:28	1 grasshopper.		
138.	m	1:33	1 mayfly.		
139.	m	1:41	1 grasshopper.		
140.	m	1:44	1 cutworm.		
141.	m	1:49	1 black butterfly.		
142.	f	1:56	1 grasshopper.		
143.	m	2:06	1 grasshopper.		carried away.
144.	m	2:07	1 grasshopper.		carried away.
145.	m	2:12	1 grasshopper.		
146.	f	2:13	1 grasshopper.		
147.	f	2:17	1 grasshopper.		
148.	f	2:19	1 fly.		
149.	m	2:21	1 grasshopper.		
150.	m	2:31	1 grasshopper.		carried away.
151.	f	2:34	1 moth.		
152.	m	2:35	1 grasshopper.		
153.	f	2:37	1 grasshopper.		
154.	f	2:42	1 grasshopper.		
155.	m	2:43	1 grasshopper.		
156.	f	2:49	1 grasshopper.		
157.	f	2:55	1 fly larva.		
158.	m	3:02	1 grasshopper.	Orange.	carried away.
159.	m	3:22	1 grasshopper.	Blue.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
160.	f	3:25	1 grasshopper.		carried away.
161.	f	3:37	1 grasshopper.	Blue.	carried away.
162.	m	3:39	1 grasshopper.	Orange.	carried away.
163.	m	3:51	1 larva.	White.	
164.	f	4:09	1 moth.	White.	
165.	m	4:11	1 earthworm.	Green.	
166.	f	4:13	2 mayflies.	Green.	carried away.
167.	m	4:35	1 cutworm.	Green.	carried away.
168.	m	4:45	1 cutworm.	Green.	carried away.
169.	f	4:45	1 dragonfly.	Blue.	
170.	m	4:50	1 spider.	White.	
171.	f	4:54	3 mayflies.	White.	carried away.
172.	m	4:56	1 cutworm.	White.	
173.	f	4:56	1 cutworm.	Orange.	carried away.
174.	f	5:00	3 mayflies.	O. 2, G. 1.	
175.	m	5:02	1 cutworm.	Green.	
176.	f	5:10	3 mayflies.	O. 2, G. 1.	
177.	m	5:15	1 cutworm.	Orange.	
178.	m	5:20	1 cutworm.	Orange.	carried away.
179.	f	5:20	1 unknown.	Green.	
180.	f	5:21	1 white worm.	Green.	from Green.
181.	f	5:23	1 cutworm.	White.	
182.	f	5:35	1 large caterpiller, 1 maybeetle, 2 mayflies.	Green.	
183.	f	5:39	3 mayflies.	W. 2, B. 1.	
184.	m	5:41	1 grasshopper.	Blue.	from Orange.
185.	f	5:44	5 mayflies.	Orange.	
186.	m	5:48	1 cutworm.	Blue.	from Green.
187.	f	5:49	1 mayfly.	Blue.	
188.	f	5:52	1 larva.	Orange.	
189.	m	5:52	2 mayflies.	Blue.	
190.	f	5:55	1 larva.	Green.	
191.	m	6:00	1 cutworm.	Orange.	taken from Orange.
192.	f	6:04	1 cutworm.	Green.	
193.	m	6:11	1 cutworm.	Blue.	
194.	f	6:15	2 mayflies.	Blue.	
195.	f	6:18	3 mayflies, 1 earthworm.	White.	from White.
196.	f	6:28	2 mayflies.	White.	
197.	f	6:35	1 cutworm.	Blue.	
198.	f	6:38	2 mayflies.	Blue.	
199.	m	6:48	1 beetle.	Blue.	
200.	m	6:52	1 mayfly.	White.	from White.
201.	m	6:57	1 mayfly.	White.	
202.	f	6:57	1 beetle, 1 grasshopper.	Orange.	
203.	m	6:59	2 mayflies.	Blue.	from Green.
204.	f	7:02	1 mayfly.	Blue.	
205.	f	7:05	4 mayflies.	White.	
206.	f	7:08	2 mayflies.	W. 1, B. 1.	
207.	f	7:11	1 cutworm.	White.	
208.	f	7:12	1 cutworm.	White.	
209.	f	7:14	2 grasshoppers.	G. 1, B. 1.	
210.	m	7:15	1 cutworm.	White.	from White.
211.	f	7:15	1 earthworm.	Green.	from Green.
212.	m	7:20	1 cutworm.	Orange.	from Orange.

No.	Sex.	Time.	Food.	Young fed.	Excreta.
213.	f	7:23	1 maybeetle.	Green.	from Green.
214.	m	7:26	1 grasshopper.	Green.	
215.	f	7:30	1 dragonfly, 1 mayfly.	Green.	
216.	f	7:36	1 maybeetle.	Blue.	
217.	f	7:38	1 maybeetle.	Blue.	
218.	f	7:42	1 larva.	Blue. from Green, eaten.	
219.	f	7:44	1 spider.	Green.	
220.	f	7:45	1 dragonfly.	Orange.	from Orange
221.	f	7:46	1 moth.	White.	from White.
222.	m	7:50	1 cutworm.	Orange.	
223.	f	7:52	3 mayflies.	White.	
224.	m	7:52	2 worms.	W. 1, B. 1.	
225.	m	7:54	1 cutworm.	White.	
226.	f	7:56	1 mayfly.	White.	
			1 moth.	Blue.	
227.	f	7:56	1 mayfly.	Blue.	
228.	f	8:10	1 mayfly.	Blue.	from Green.
229.	f	8:14	unknown insect.	Green.	
230.	m	8:26	1 maybeetle.	Orange.	from Orange.
231.	m	8:28	1 unknown insect.	Green.	from Green.
232.	m	8:35	1 grasshopper.	Green.	
			Data for June 27, 1911. From 3:30 a. m. to 9:00 p. m.		
233.	—	4:12	1 grasshopper.	——	——
234.	f	4:16	1 cutworm.	——	
235.	f	4:22	3 mayflies.	——	——
236.	f	4:28	3 x * mayflies.	Blue.	from Blue.
237.	m	4:30	1 mayfly.	White.	from White.
238.	f	4:33	3 mayflies.	O. 2, G. 1.	from Orange.
239.	m	4:33	2 mayflies.	Orange.	
240.	f	4:34	2 mayflies, 1 fly.	White.	
241.	m	4:34	1 beetle.	Green.	
242.	f	4:36	1 mayfly, 1 larva.	White.	
243.	m	4:37	2 grasshoppers.	Green.	
244.	f	4:39	1 unknown.	Blue.	
245.	f	4:43	1 worm.	Orange.	
			1 raisin.	Green.	
246.	m	4:44	2 grasshoppers.	Orange.	
247.	f	4:46	3 mayflies.	Orange.	
248.	f	4:54	2 raisins.	Blue.	
249.	f	5:00	3 mayflies.	Orange.	
250.	f	5:21	2 mayflies.	White.	
251.	f	5:30	1 cutworm.	White.	
252.	m	5:35	1 cutworm, 1 mayfly.	Blue.	from Blue.
253.	f	5:38	1 mayfly.	Green.	
			1 moth.	White.	
254.	m	5:40	1 cutworm.	Blue.	
255.	f	5:50	2 moths.	Green.	
256.	f	5:52	1 earthworm.	Green.	——
257.	--	5:55	1 dragonfly, 1 spider.	White.	
258.	f	6:00	1 dragonfly.	Green.	from Green.
259.	f	6:06	2 mayflies.	Green.	

* The letter x is here used in place of the plus mark.

No.	Sex.	Time.	Food.	Young fed.	Excreta.
260.	f	6:08	1 moth.	White.	from White.
			1 earthworm.	Green.	
261.	f	6:11	1 cutworm.	White.	
262.	f	6:13	1 dragonfly.	Orange.	
			1 cutworm.	Green.	
263.	f	6:15	1 moth, 1 grasshopper.	Blue.	
264.	f	6:18	1 unknown bug.	Orange.	from Orange.
265.	f	6:20	1 moth.	Green.	
266.	f	6:28	4 mayflies, 2 moths.	White.	
267.	m	6:29	1 cutworm.	Orange.	
268.	f	6:30	2 raisins.	O. 1, G. 1.	
269.	m	6:31	1 cutworm. 1 moth.	White.	
270.	f	6:31	1 moth.	White.	
271.	f	6:36	1 grasshopper.	White.	
272.	f	6:40	1 mayfly.	Blue.	from Blue.
273.	m	6:41	1 beetle.	White.	
274.	m	6:43	1 beetle.	White.	
275.	f	6:43	2 mayflies.	Green.	
276.	m	6:45	1 butterfly.	Orange.	
277.	f	6:48	2 dragonflies.	White.	
278.	f	6:49	1 maybeetle.	White.	
279.	f	6:53	1 grasshopper.	Green.	from Green.
			1 flying ant.	Blue.	
280.	f	6:55	1 cutworm.	White.	
281.	f	6:58	1 grasshopper, 1 spider.	Blue.	
282.	m	7:07	1 moth.	White.	
283.	f	7:16	1 unknown.	White.	
284.	m	7:16	1 cutworm.	White.	
285.	f	7:20	1 moth.	Blue.	
286.	m	7:35	1 cutworm.	White.	
287.	f	7:35	1 mayfly.	Blue.	
288.	f	7:38	2 moths.	G. 1, O. 1.	
289.	m	7:40	1 moth.	Orange. from Orange eaten.	
290.	f	7:41	2 unknown insects.	Green.	
291.	m	7:42	1 cutworm.	Green.	
292.	f	7:44	unknown.	Blue.	from Blue.
293.	m	7:48	1 grasshopper.	Green.	from Green.
294.	f	7:50	1 moth.	White.	
			2 mayflies.	Blue.	
295.	m	7:56	1 cutworm.	White.	from White.
296.	f	8:03	1 dragonfly.	Blue.	
297.	f	8:06	1 grasshopper.	Orange.	
			1 dragonfly.	Green.	
298.	m	8:08	1 moth, 1 grasshopper.	White.	
299.	f	8:12	2 moths.	Blue.	
300.	f	8:14	1 grasshopper.	Blue.	
301.	f	8:15	1 grasshopper, 1 moth.	Blue.	
302.	m	8:16	1 ant, 1 worm.	Orange.	
303.	f	8:21	2 moths.	Green.	
304.	f	8:24	1 moth.	Blue.	
305.	f	8:26	3 moths.	O, 2. G. 1.	
306.	f	8:27	2 moths.	B. 1, G. 1.	
307.	m	8:34	1 cutworm.	Green.	from Blue
308.	f	8:35	1 mayfly, 1 moth.	Blue.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
309.	m	8:35	2 mayflies.	W. 1, G. 1.	
310.	f	8:40	1 mayfly, 1 moth.	Blue.	
			1 unknown insect.	Orange.	
311.	m	8:44	2 moths.	G. 1, W. 1.	from White.
312.	f	8:46	1 mayfly.	Orange.	
			1 dragonfly.	Green.	
313.	f	8:48	2 moths.	O. 1, G. 1.	
134.	m	8:51	1 cutworm.	Blue.	
			1 moth.	White.	
315.	f	8:54	1 grasshopper.	Orange.	
316.	f	8:58	2 moths.	White.	
317.	f	9:09	1 mayfly,1 damsel fly.	White.	from White.
318.	m	9:10	unknown.	Orange.	
319.	f	9:12	1 moth.	Blue.	
320.	f	9:15	1 mayfly, 2 moths.	Blue.	
321.	m	9:16	2 cutworms.	Orange.	
322.	f	9:16	1 wire worm, 1 moth.	White.	
323.	f	9:17	1 caterpiller.	Orange.	
324.	m	9:23	1 grasshopper, 1 mayfly.	Blue.	
325.	f	9:27	1 unknown insect.	Green.	
326.	m	9:29	1 moth, 1 worm.	Green.	
327.	f	9:30	1 raisin.	Blue.	
328.	m	9:32	2 cutworms.	Orange.	
329.	f	9:32	3 x * moths.	Green.	
330.	f	9:34	1 wire worm, 2 moths.	White.	
331.	m	9:35	1 grasshopper.	Blue.	
			1 moth.	White.	
332.	m	9:37	1 cutworm.	White.	from White eaten.
333.	f	9:38	2 mayflies.	Green.	
334.	f	9:39	4 x * mayflies.	Green.	
335.	f	9:40	1 cut worm.	White.	
336.	f	9:45	1 beetle.	Orange.	
337.	m	9:49	1 dragonfly, 1 moth.	Orange.	
338.	f	9:50	3 x * moths.	Green.	
339.	f	9:54	1 moth.	Blue.	
340.	f	9:57	1 moth.	Green.	
341.	f	10:01	1 moth, 1 beetle.	Green.	from Green eaten.
342.	f	10:03	1 moth, 3 mayflies.	White.	
343.	m	10:15	1 wire worm, 1 moth, 1 cutworm.	Green.	
344.	f	10:16	5 x * mayflies.	B. 3, G. 2.	
345.	m	10:16	1 wire worm.	White.	
346.	m	10:18	1 cutworm.	Orange.	from Orange.
347.	f	10:21	2 moths.	Green.	
348.	f	10:24	unknown.	White.	from White eaten.
349.	m	10:26	1 moth.	White.	
350.	f	10:30	2 moths.	Green.	
351.	m	10:30	1 moth.	Orange.	
352.	f	10:31	1 raisin.	Orange.	from Orange.
353.	m	10:33	1 moth, 1 beetle.	Green.	
354.	f	10:35	1 beetle.	White.	
355.	f	10:39	1 moth.	Green.	

* The letter x is here used in place of the plus mark.

No.	Sex.	Time.	Food.	Young fed.	Excreta.
356.	m	10:42	1 grasshopper.	Orange.	
357.	f	10:43	1 grasshopper.	Green.	
			1 mayfly.	White.	
358.	m	10:45	1 moth.	White.	
359.	f	10:50	3 moths.	Green.	
360.	f	10:53	3 moths.	G. 1, W. 1, O. 1.	
361.	f	10:56	1 grasshopper.	Blue.	
362.	f	11:00	2 grasshoppers.	White.	from White.
363.	m	11:03	1 cutworm.	Orange.	
364.	f	11:05	3 moths.	Green.	from Green.
365.	f	11:13	1 mayfly.	White.	
366.	f	11:17	1 cutworm.	Green.	
367.	m	11:17	1 cutworm.	Orange.	
368.	f	11:20	1 grasshopper.	Green.	
369.	m	11:22	1 grasshopper.	Green.	
370.	f	11:23	1 moth.	Orange.	
371.	m	11:25	2 grasshoppers.	Green.	
372.	m	11:35	1 grasshopper.	Green.	
373.	f	11:36	3 moths.	G. 2, B. 1.	
374.	m	11:37	1 moth.	White.	
375.	f	11:38	1 cutworm.	White.	
376.	f	11:48	1 mayfly.	Orange.	
377.	m	11:49	1 mayfly.	Orange.	from Orange.
378.	f	11:50	1 moth.	Green.	
379.	m	11:55	1 grasshopper.	Green.	from Green.
380.	f	11:56	2 grasshoppers, 1 moth.	Blue.	
381.	f	12:06	1 cutworm, 1 moth.	White.	from White.
382.	m	12:07	1 cutworm, 1 moth.	White.	
383.	f	12:12	1 mayfly.	Green.	
384.	m	12:17	2 moths.	Orange.	
385.	f	12:20	1 mayfly, 1 moth.	Green.	
386.	f	12:25	2 grasshoppers.	Green.	
387.	m	12:26	1 larva.	Green.	
388.	f	12:27	1 cutworm.	Orange.	
389.	m	12:28	2 green worms.	Blue.	
390.	f	12:32	1 grasshopper.	White.	
391.	f	12:33	1 grasshopper.	White.	
392.	m	12:36	2 moths.	Blue.	
393.	f	12:43	1 mayfly.	Orange.	
394.	m	12:46	1 cricket.	Blue.	
395.	f	12:51	1 grasshopper.	Orange.	
396.	f	1:06	2 moths.	Orange.	
397.	m	1:06	1 cutworm.	Orange.	
398.	f	1:07	1 raisin.	White.	
399.	m	1:08	1 grasshopper.	Green.	
400.	f	1:09	1 moth.	White.	
401.	m	1:17	1 maybeetle.	Orange.	
402.	f	1:20	1 grasshopper.	Blue.	
403.	f	1:22	3 moths.	O. 2, 1 escaped.	
404.	m	1:22	2 moths.	Orange.	
405.	f	1:26	1 beetle, 3 x black ants.	Orange.	
406.	m	1:34	1 grasshopper.	Green.	from Green.
407.	f	1:34	2 mayflies.	Orange.	
408.	f	1:50	1 cutworm.	Orange.	from Orange.

No.	Sex.	Time.	Food.	Young fed.	Excreta.
409.	f	1:52	2 moths.	Blue.	from Blue.
410.	f	1:54	1 moth, 1 dragonfly.	White.	from White.
411.	m	1:55	1 grasshopper.	Blue.	
412.	m	1:58	1 cutworm.	Orange.	
413.	f	1:59	1 moth.	Green.	
414.	f	2:00	1 grasshopper.	Green.	
415.	m	2:07	1 grasshopper.	White.	
416.	f	2:14	1 mayfly.	Orange.	
417.	f	2:16	3 grasshoppers.	B. 1, G. 2.	from Green.
418.	f	2:17	1 grasshopper.	Blue.	
419.	f	2:21	1 moth.	White.	
420.	f	2:22	2 unknown bugs.	White.	
421.	f	2:24	1 grasshopper.	Green.	
422.	f	2:26	1 grasshopper.	White.	
423.	f	2:28	1 grasshopper.	Orange.	from Orange.
424.	f	2:30	1 moth.	White.	
425.	m	2:31	1 grasshopper.	Orange.	
426.	f	2:32	unknown.	White.	
427.	f	2:35	1 moth, 1 earthworm.	Green.	
			1 ant.	Blue.	
428.	m	2:36	1 grasshopper.	Green.	
429.	m	2:44	1 cutworm.	Blue.	
430.	f	2.46	2 unknown insects.	White.	
431.	m	2:46	1 grasshopper.	Blue.	
432.	m	2:50	1 grasshopper.	Orange.	
433.	f	2:52	2 grasshoppers.	White.	
434.	f	3:00	1 grasshopper.	White.	
435.	f	3:03	1 moth.	Blue.	
436.	m	3:08	2 grasshoppers.	Orange.	from Orange eaten.
437.	f	3:09	2 x black ants.	Green.	
438.	f	3:10	1 grasshopper.	Orange.	
439.	f	3:11	1 moth.	Blue.	from Blue.
440.	f	3:16	1 moth.	Green.	
441.	m	3:20	1 moth.	White.	
442.	f	3:22	1 moth.	White.	from White.
443.	m	3:31	1 moth.	White.	
444.	f	3:32	1 grasshopper.	Blue.	
445.	m	3:36	1 grasshopper.	White.	
446.	f	3:39	1 grasshopper.	White.	
447.	f	3:41	1 grasshopper.	White.	
448.	m	3:41	1 ant.	Orange.	
449.	f	3:44	1 beetle.	Blue.	
450.	f	3:46	1 grasshopper.	Orange.	
451.	m	3:48	1 grasshopper.	Orange.	from Orange.
452.	m	3:51	1 moth.	Orange.	
			1 unknown.	Green.	
453.	m	3:52	1 grasshopper.	Orange.	
454.	f	3:57	1 grasshopper.	White.	
455.	f	3:59	1 grasshopper.	Orange.	
456.	f	4:04	1 moth.	Blue.	
457.	m	4:06	1 grasshopper.	Orange.	
458.	f	4:06	1 moth.	Green.	
459.	f	4:14	1 grasshopper.	White.	removed.
460.	m	4:17	1 moth.	Blue.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
461.	m	4:20	1 ant x.	Green.	removed.
462.	m	4:24	1 unknown.	Green.	
463.	f	4:24	1 moth.	Orange.	removed.
464.	m	4:30	1 moth.	Blue.	
465.	f	4:35	1 raisin.	Orange.	
466.	f	4:40	1 grasshopper.	White.	removed.
467.	m	4:44	1 moth.	Blue.	
468.	f	4:49	1 grasshopper.	Green.	
469.	m	4:52	1 cutworm.	Blue.	removed
470.	m	4:55	1 cutworm.	White.	
471.	m	5:06	1 unknown insect.	Green.	
472.	f	5:19	1 worm.	Green.	
473.	f	5:26	1 moth.	Blue.	
			1 cutworm.	White.	
474.	m	5:27	1 unknown.	Green.	
475.	m	5:30	1 unknown.	Orange.	
476.	m	5:32	1 cutworm.	White.	
477.	f	5:33	1 cutworm.	Orange.	
478.	f	5:35	1 cutworm.	Orange.	removed.
479.	f	5:40	1 dragonfly.	White.	removed.
480.	f	5:43	2 moths.	B. 1, G. 1.	removed.
481.	m	5:45	1 grasshopper.	Blue.	
482.	f	5:46	1 grasshopper.	White.	from White.
483.	f	5:49	1 grasshopper.	Blue.	
484.	m	5:54	1 worm.	Green.	
485.	f	6:05	1 mayfly, 1 cricket.	Green.	from Green.
486.	f	6:11	1 maybeetle.	Blue.	from Blue.
487.	f	6:15	1 mayfly, 2 moths.	Green.	
488.	m	6:17	1 cutworm.	Blue.	
489.	f	6:21	1 grasshopper, 2 dragonflies.	Green.	
490.	f	6:26	1 wireworm.	White.	
491.	m	6:28	2 cutworms, 1 unknown.	White.	from White.
492.	f	6:30	3 mayflies.	White.	
493.	m	6:43	1 moth, 1 grasshopper.	White.	
494.	f	6:44	1 cutworm.	White.	from Blue.
495.	f	6:45	1 grasshopper.	White.	
496.	m	6:47	1 cutworm.	Blue.	
497.	f	6:47	2 mayflies.	Green.	
498.	f	6:52	1 larva.	Blue.	from Blue.
499.	f	6:57	1 larva.	White.	from White.
500.	m	6:58	1 grasshopper.	Blue.	from Blue.
501.	f	7:05	1 larva.	White.	
502.	m	7:10	1 larva.	Orange.	
503.	f	7:24	1 cutworm.	White.	
504.	f	7:26	1 grasshopper.	White.	
505.	f	7:28	2 cutworms.	W. 1, B. 1.	from White.
506.	f	7:31	1 grasshopper.	White.	
507.	f	7:48	2 moths.	Orange.	
508.	f	7:49	1 raisin.	Orange.	
509.	f	7:52	unknown.	Orange.	
510.	m	7:56	1 worm.	White.	from White.
511.	f	7:56	3 x moths.	Blue.	from Blue.
512.	f	7:58	1 moth.	Green.	
513.	m	7:59	1 moth.	Orange.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
514.	f	8:00	1 mayfly.	Green.	
515.	f	8:03	2 moths.	Blue.	
516.	f	8:06	3 moths.	B. 2, G. 1.	
517.	f	8:09	2 moths.	Green.	
518.	f	8:10	2 moths.	Green. from Green & White.	
		Data for June 28, 1911. From 3:30 a. m. to 9:00 p. m.			
519.	m	4:02	unknown.	——	removed.
520.	m	4:07	1 moth.	——	removed.
521.	f	4:14	1 moth.	Orange.	
522.	f	4:15	1 moth.	White.	
523.	m	4:15	3 moths.	Orange.	
524.	m	4:16	2 unknowns.	G. 1, O. 1.	
525.	f	4:16	1 grasshopper.	White.	
526.	f	4:17	1 moth.	Blue.	
527.	m	4:17	1 unknown.	White.	
528.	f	4:18	2 x moths.	Orange.	
529.	f	4:19	1 grasshopper.	Green.	
530.	m	4:20	1 unknown.	Orange.	removed.
531.	f	4:21	2 unknowns.	G. 1, B. 1.	
532.	f	4:22	1 mayfly.	Blue.	
533.	m	4:24	1 moth, 1 larva.	Orange.	
534.	m	4:28	3 x unknowns.	O. B. W.	
535.	f	4:29	2 x unknowns.	White.	removed.
536.	f	4:31	2 grasshoppers.	Orange.	
537.	m	4:38	1 larva.	Orange.	
538.	f	4:10	1 grasshopper.	White.	
			2 mayflies.	Blue.	
539.	f	4:50	2 unknowns.	Orange. Blue.	
540.	m	4:55	1 beetle.	Orange.	
541.	f	4:58	1 moth.	White.	
542.	f	5:05	1 mayfly.	Green.	
543.	f	5:10	1 grasshopper.	Blue.	
544	f	5:11	1 mayfly, 1 cricket.	Green.	removed.
545.	f	5:12	1 grasshopper.	White.	removed.
546.	f	5:15	4 mayflies.	O. 3, W. 1.	
547.	f	5:25	1 mayfly.	Orange.	
548.	f	5:28	1 grasshopper.	White.	
549.	f	5:30	1 unknown.	Orange.	
550.	f	5:32	1 grasshopper.	Orange.	
551.	f	5:35	1 grasshopper.	White.	
552.	f	5:36	1 mayfly.	Green.	
553.	m	5:40	1 cutworm.	White.	
554.	f	5:42	1 grasshopper.	Green.	
555.	f	5:45	5 mayflies.	O. 2, W. 3.	removed.
556.	f	5:48	2 mayflies.	Green.	removed.
557.	f	5:50	1 mayfly.	Blue.	
558.	f	5:53	1 grasshopper.	Green.	
559.	m	5:58	3 mayflies.	White.	
560.	m	6:00	2 beetles.	Green.	
561.	f	6:02	1 mayfly.	Blue.	
562.	m	6:02	2 beetles.	Blue.	
563.	f	6:03	1 moth.	Blue.	
564.	f	6:04	1 unknown.	Green.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
565.	m	6:07	1 cutworm.	White.	
566.	f	6:07	1 cutworm.	Green.	
567.	f	6:12	1 grasshopper.	Orange.	removed.
568.	m	6:12	1 grasshopper.	Orange.	
569.	m	6:14	1 mayfly, 1 worm.	Blue.	
570.	f	6:15	2 mayflies.	Blue.	
571.	m	6:16	4 mayflies.	Blue.	removed.
572.	f	6:20	5 mayflies.	Orange.	
573.	m	6:25	4 mayflies.	White.	
574.	f	6:25	2 mayflies, 1 cutworm.	Blue.	
575.	f	6:27	1 mayfly, 2 moths.	Orange.	
576.	f	6:35	7 mayflies.	Blue.	
			1 beetle.	Green.	
577.	f	6:44	6 x mayflies.	White.	
578.	m	6:44	6 x mayflies.	Orange.	
579.	m	6:53	5 mayflies.	Orange.	from Orange.
580.	m	6:54	1 larva.	White.	from White.
581.	f	6:57	2 mayflies.	Blue.	
582.	m	7:06	1 unknown.	Blue.	
583.	m	7:12	4 x mayflies.	Green.	from Green.
584.	f	7:12	4 x mayflies.	Green.	
585.	m	7:13	1 unknown.	Orange.	
586.	f	7:14	1 mayfly.	Green.	
587.	m	7:15	3 x mayflies.	White.	
588.	f	7:17	4 x mayflies.	O. G.	
589.	m	7:18	2 x mayflies.	Green.	
590.	f	7:20	1 mayfly, 1 raisin.	Orange.	
591.	f	7:21	3 x mayflies.	Green.	
592.	m	7:22	3 mayflies.	Green.	
593.	f	7:26	1 mayfly, 1 unknown.	——	
594.	f	7:28	3 x mayflies.	White.	
595.	m	7:31	3 mayflies.	Blue.	
596.	f	7:31	1 unknown.	——	
597.	f	7:33	3 x mayflies.	O. G.	
598.	f	7:35	2 mayflies.	Green.	
			1 unknown.	White.	from White.
599.	m	7:37	3 mayflies.	Green.	
600.	f	7:38	3 mayflies.	Green.	
601.	f	7:41	6 x mayflies.	White.	
602.	m	7:44	1 damselfly, 1 mayfly.	White.	
603.	f	7:53	4 x mayflies.	O. 2, B. Rest.	from Blue.
604.	f	7:56	1 mayfly.	Orange.	
605.	m	7:55	2 mayflies.	Blue.	from Blue.
606.	m	7:59	2 mayflies.	Green.	
607.	f	8:01	1 cutworm, 1 mayfly.	White.	
608.	f	8:08	2 mayflies.	Orange.	
609.	f	8:11	1 cutworm.	Orange.	
610.	f	8:15	5 mayflies.	B. 2, W. 3.	
611.	f	8:17	4 mayflies.	White.	
612.	m	8:20	4 mayflies.	Blue.	
613.	f	8:20	2 mayflies.	White.	
614.	m	8:23	4 mayflies.	W. 2 mayflies.	
			1 cutworm.	B. rest.	
615.	m	8:26	1 moth, 1 mayfly, 1 cutworm.	Orange.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
616.	f	8:28	1 maybeetle.	White.	from White.
617.	f	8:30	4 mayflies.	White.	
618.	f	8:31	1 cutworm.	Orange.	
619.	f	8:33	6 x mayflies.	White.	
620.	m	8:35	1 cutworm, 1 mayfly.	Blue.	
621.	f	8:35	1 cutworm.	Blue.	
622.	m	8:40	1 cutworm.	Green.	
623.	m	8:43	1 cutworm, 1 wireworm.	Green.	
624.	f	8:47	1 worm.	Green.	
			1 mayfly.	Orange.	
625.	f	8:49	2 mayflies.	B. 1, G. 1.	
626.	f	8:53	1 mayfly.	White.	from Green.
627.	f	8:58	2 mayflies.	White.	
628.	m	8:59	1 wireworm.	Green.	from Green.
629.	f	9:04	1 mayfly.	Blue.	
630.	m	9:05	1 mayfly.	White.	
			1 wireworm.	Green.	
631.	f	9:09	2 mayflies.	Green.	
632.	f	9:13	1 mayfly, 1 wireworm.	Green.	
633.	f	9:15	1 mayfly.	Blue.	
634.	f	9:17	2 grasshoppers.	Green.	
635.	m	9:17	unknown.	Orange.	
636.	m	9:19	3 mayflies.	B. 1, W. 2.	
637.	f	9:23	1 mayfly, 1 wireworm, 1 fly.	Blue.	
638.	m	9:32	1 wireworm.	Orange.	
639.	f	9:33	unknown.	Orange.	
640.	f	9:35	1 raisin.	Blue.	
641.	m	9:36	unknown.	W. O. fed.	from White.
642.	f	9:39	3 mayflies.	Orange.	
643.	f	9:40	1 mayfly, 1 damselfly.	Orange.	
644.	m	9:48	3 mayflies.	Green.	from Green.
645.	f	9:52	1 mayfly, 1 raisin.	Green.	
646.	m	9:56	1 grasshopper.	Orange.	
647.	f	10:01	1 mayfly.	White.	
648.	m	10:03	1 spider.	Orange.	
649.	m	10:06	2 mayflies.	Orange.	
650.	f	10:09	2 moths.	White.	from White.
651.	f	10:11	1 grasshopper.	Blue.	from Blue.
652.	m	10:12	4 mayflies.	Green.	
653.	f	10:14	1 grasshopper.		
654.	m	10:22	2 moths.	O. 1, G. 1.	
655.	f	10:24	2 larvae.	O. 1, G. 1.	
656.	f	10:27	1 raisin.		removed.
657.	m	10:29	1 larva.	White.	
658.	m	10:30	1 larva.	Orange.	
659.	f	10:30	1 unknown.	Blue.	
660.	f	10:33	2 ants.	W. B.	
661.	f	10:36	1 grasshopper.	Blue.	
662.	m	10:37	1 moth.	Blue.	
			1 mayfly.	Orange.	
663.	f	10:38	1 mayfly.	White.	
664.	m	10:40	1 larva.	Green.	
665.	m	10:47	2 mayflies.	Orange.	
666.	f	10:50	1 mayfly.	White.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
667.	f	10:50	1 moth.		
668.	m	10:54	2 mayflies.	Blue.	
669.	f	10:54	1 grasshopper.	Green.	
			1 moth.	Blue.	
670.	f	10:58	1 butterfly, 1 mayfly.	White.	from White.
671.	f	11:06	1 moth, 1 cutworm.	Blue.	
672.	m	11:07	1 cutworm.	White.	
673.	f	11:09	1 moth.	Blue.	
674.	f	11:14	2 moths.	Orange.	
675.	f	11:15	3 mayflies.	Green.	
676.	m	11:15	1 grasshopper.	White.	
677.	f	11:16	1 grasshopper.	Orange.	
678.	f	11:20	4 mayflies.	Green.	
679.	f	11:26	2 mayflies.	Blue.	
680.	m	11:26	1 mayfly.	Green.	
681.	f	11:30	2 mayflies.	Blue.	
682.	f	11:36	2 mayflies.	Blue.	
683.	m	11:40	1 cutworm.		
684.	m	11:45	1 grasshopper.	White.	
685.	f	11:45	3 moths.	White.	from White.
686.	f	11:50	1 grasshopper.	White.	
687.	f	11:51	1 grasshopper.	Green.	from Green.
688.	f	11:56	2 moths.	Blue.	
689.	f	12:05	1 moth.	Blue.	
690.	m	12:06	1 grasshopper.	Orange.	from Orange.
691.	f	12:08	1 mayfly.	Orange.	
692.	m	12:09	1 moth.	Blue.	
693.	f	12:10	2 mayflies.	White.	
694.	f	12:13	2 mayflies.	White.	
695.	f	12:14	1 mayfly.	White.	
696.	m	12:14	1 grasshopper, 1 mayfly.	White.	
697.	f	12:16	1 mayfly.	Orange.	
698.	f	12:19	4 grasshoppers.	G. 3, W. 1.	
699.	m	12:26	2 mayflies.	Orange.	
700.	m	12:37	1 caterpiller.	White.	
701.	m	1:08	2 mayflies.	Orange.	
			1 moth.	White.	
702.	m	1:10	1 piece of cherry.	Orange.	
703.	m	1:14	1 moth.	Orange.	
704.	m	1:15	1 moth.	Blue.	
705.	m	1:16	1 moth.	Blue.	
706.	m	1:25	3 mayflies.	O. 2, B. 1.	
707.	m	1:32	1 grasshopper.	Blue.	
708.	m	1:41	1 grasshopper, 1 larva.	Orange.	
709.	m	1:47	1 grasshopper, 1 mayfly.	Blue.	from Blue.
710.	m	1:49	1 grasshopper.	White.	
711.	m	1:52	1 grasshopper.	White.	
712.	m	1:53	1 grasshopper.	Orange.	
713.	m	1:57	1 grasshopper.	Blue.	
714.	m	2:06	1 grasshopper.	Orange.	
715.	m	2:08	1 grasshopper.	Orange.	from Orange.
			1 mayfly.	White.	
716.	m	2:15	2 grasshoppers.	Orange.	
717.	m	2:19	1 grasshopper.	Orange.	

718.	m	2:23	1 grasshopper.	Orange.	
719.	m	2:25	1 grasshopper.	Orange.	
720.	m	2:26	1 mayfly.	White.	from White.
721.	m	2:40	2 grasshoppers.	O. 1, B. 1.	from Blue.
722.	f	2:53	2 x ants.	White.	
723	f	2:54	1 ant.	White.	
724.	f	3:00	3 x ants.	Blue.	
725.	f	3:33	1 grasshopper, 1 mayfly.	Blue.	
726.	f	3:45	1 cutworm.	Blue.	
727.	f	3:50	1 grasshopper.	Blue.	
728.	f	3:52	1 mayfly.	White.	from White.
729.	f	3:58	3 moths.	White.	
730.	f	4:00	2 mayflies.	White.	
731.	f	4:01	1 grasshopper.	White.	
732.	f	4:04	1 grasshopper, 1 larva.	Blue.	from Blue.
733.	f	4:06	unknown.	White.	
734.	f	4:55	1 dragonfly.	Blue.	
735.	m	5:43	1 mayfly.	Blue.	
			2 moths.	White.	from White.
736.	f	5:45	unknown.	Blue.	
737.	f	5:53	1 grasshopper, 1 moth.	Blue.	
738.	f	5:55	1 mayfly.	Blue.	
739.	f	5:58	1 grasshopper.	Blue.	
740.	f	6:00	1 mayfly.	Blue.	
741.	f	6:01	1 mayfly.	Blue.	
742.	f	6:04	1 mayfly.	White.	
			1 moth.	Blue.	
743.	f	6:06	3 mayflies.	B. 2, W. 1.	
744.	f	6:07	1 beetle, 1 mayfly.	White.	
745.	f	6:42	1 moth.	Blue.	
746.	f	7:02	1 cutworm.	Blue.	
747.	f	7:04	1 moth.	Blue.	
748.	f	7:08	1 mayfly, 1 moth.	White.	
749.	f	7:18	1 moth.	Blue.	from Blue.
750.	m	8:25	1 grasshopper.	Blue	

Data for June 29, 1911. From 4:00 a. m. to 8:10 a. m.

751.	m	4:18	1 grasshopper.	Blue	
752.	f	4:20	unknown.	Blue.	
753.	f	4:25	1 mayfly.	White.	from White.
754.	f	4:30	1 earthworm.	Blue.	from White.
755.	f	4:31	unknown.	White.	from Blue.
756.	f	4:33	3 mayflies.	Blue.	
757.	f	4:36	1 raisin.	White.	
758.	m	4:40	1 moth.	White.	
759.	f	4:56	unknown.	White.	
760.	f	5:00	2 moths.	White.	
761.	f	5:10	3 mayflies.	White.	
762.	f	5:42	1 mayfly.	White.	
763.	f	6:13	3 mayflies.	White.	
764.	f	6:15	1 mayfly.	White.	
765.	f	6:16	1 beetle.	White.	
766.	f	6:21	1 beetle.	White.	
767.	f	6:30	1 mayfly.	White.	
768.	f	6:33	1 moth.	White.	

No.	Sex.	Time.	Food.	Young fed.	Excreta.
769.	f	6:45	unknown.	White.	
770.	f	6:53	1 grasshopper.	White.	
771.	f	7:02	1 grasshopper.	Blue.	Blue on nest.
772.	f	7:07	1 beetle.	White.	
773.	m	7:14	1 grasshopper.	White.	
774.	f	7:22	unknown.	White.	
775.	m	7:35	1 moth.	Blue.	

Brooding.

The first observations were taken on the afternoon of June 23, when the young birds were about six days old. The afternoon was hot and sultry and the nest was in such a position as to be exposed to the hot rays of the sun. One or the other of the old birds brooded almost all of the time. During the afternoon, the male brooded once for a period of twenty-six minutes and the female for twenty minutes, but the periods as a rule were short, being from two to five minutes in length. At about two o'clock the shadow of an oak tree was thrown on the nest and the old birds ceased brooding. On the next day the brooding was carried on until about the same time, but the old birds were not so particular about staying on the nest all of the time, and by the following Monday, June 26, the brooding to protect the young had practically ceased.

There was a marked difference in the position assumed by the male and female in brooding. The male sat on the edge of the nest with his feathers ruffled up, or stood in the nest in much the same posture, affording very poor protection for the young as compared with that given by the female. She spread her wings, ruffled her feathers, and stood in such a position as to completely shade the nest. Figures 3 and 4 show this contrast in behavior much better than it can be described. The position in protecting the young from the rain during the storm of the 25th, was entirely different. The female was on the nest every time it was visited during the morning. She sat down close to the nest and so well did she cover it that, after one of the worst rain storms of the season, the nest was perfectly dry. On the last two nights that we watched the nest until the close of the feeding activity, we

Figure 3. The female brooding. Notice the position of the wings and the open mouth. The white spot is visible also in this figure.

found, to our surprise, that it was the male who commenced brooding for the night; but whether the female took his place part of the time was not determined. Neither were we able to determine which bird left the nest as we approached in the morning.

From this somewhat meager data on brooding, it would seem that at the age of six days, at least, the old birds brooded only during the heat of the day. Brooding as a protection from the heat practically ceased on the seventh and eighth day. Brooding at night and as a protection from the rain continued until the young left the nest.

Feeding the Young.

The principal object of these observations was to obtain data in regard to the character and amount of food the young received from the parents, and in this we were fairly successful. Besides this, much other data was secured relative to the manner of feeding. Table II will show the number of times each day that the parent birds brought food to the young during the time they were under observation.

TABLE II.

Showing the number of visits by each parent bird.

Date.	Time.	By Male.	By Female.	Total.
June 23	12:45 P. M.–6:00 P. M.	26	32	58
June 24	12:50 P. M.–5:55 P. M.	27	41	68
June 26	12:55 P. M.–8:40 P. M.	47	59	106
June 27	3:30 A. M.–9:00 P. M.	98	186	286 *
June 28	3:30 A. M.–8:42 P. M.	90	142	232
June 29	4:15 A. M.–8:10 A. M.	4	21	25
Total times fed		292	481	775

From this table it will be seen that the female was much more active than the male in procuring food. The data given

* Twice on the 27th the young were fed without the sex of the parent feeding being determined.

for June 29, and a small part of that for June 28, does not correctly represent the total feeding activity of both parents, for, after the first fledgling left the nest, one of the parents would remain with it for a period of two hours or more until relieved by its mate — that is, the labor of feeding was divided between the nest and the departed brood. They could be seen in a ravine near by attending to the fledglings, but the distance was too great to secure any trustworthy data. From June 26 at 12:55 p. m. until the last young bird left the nest, practically every feeding is recorded. The two mornings when the observations commenced at 3:30 a. m. it was found that the old birds did not begin feeding till about 4:15, and on the morning of the 29th the parent bird was still on the nest when the observer entered the blind at 4:15. So from noon on the 26th until they left the nest three days after, the nestlings were under constant observation during the time of daily feeding activity.

Table III will show something of the character of the food received by the young birds during this part of the nestling period and also something of the quantity. It will be noticed that in the tabulated data given that the number of insects was not always determined exactly but was entered in this manner, "6+mayflies," etc. In all such cases the minimum number was used in computing the tables. As all of the persons who assisted were cautioned especially to note the number of insects exactly, it is safe to assume that if there be any error in the data, it is in having recorded too few insects rather than too many.

TABLE III.

Date—June	23	24	26	27	28	29	Totls.
Unknown Insects	6	.	3	21	21	5	56.
Larvæ	2	.	4	6	10	.	22.
Spiders	2	2	2	2	1	.	9.
Raisins, Cherry	.	.	.	10	5	1	16.
Unknown Worms	.	3	3	6	2	.	14.
Earthworms	.	1	3	3	.	1	8.

TABLE III—(Continued).

Date—June	23	24	26	27	28	29	Totls.
Wireworms	.	.	.	5	6	.	11.
Ants	.	.	.	10	7	.	17.
Caterpillars	.	.	1	1	1	.	3.
Flies	1	1	2	1	1	.	6.
Damselflies	.	.	.	1	2	.	3.
Dragonflies	1	.	3	13	1	.	18.
Butterflies	1	.	1	1	1	.	4.
Crickets	3	.	.	2	1	.	6.
Green Worms	8	5	.	2	.	.	15.
Cutworms	12	5	20	48	18	.	103.
Centipedes	2	.	.	.	.	.	2.
Moths	28	13	4	139	48	5	237.
Mayflies	6	27	56	79	244	13	425.
Beetles	3	6	6	12	8	3	38.
Grasshoppers	31	41	35	81	55	4	247.
Daily Totals	106	104	143	443	432	32	1260.

This table, which covers only a period of fifty-six and a fraction hours, shows a total of twelve hundred and forty-four insects (excepting a few worms) consumed by this one family of young birds in that time. This does not, of course, include anything eaten by the parents. As it was found that the working day for the parents began at 4:15 a. m. and closed about 8:30 p. m., a period of about sixteen hours, it will be seen that the period of fifty-six hours, during which the nest was under observation, was only a fraction of the total number of feeding hours. The young birds were in the nest from June 17 to June 29, a period of twelve days; but as they left on the morning of the 29th, we will omit that day from the total, leaving a period of eleven days for the nestling period. These eleven days represent one hundred and seventy-six feeding hours — over three times the period during which the birds were under observation. Computing the total number of insects eaten by the nestlings on the basis of the food consumed during the fifty-six hours, we have a total of 3800. While this number seems large, it must be borne in mind that the possible lower food requirement of the first half of the

nestling period is compensated in the calculation by those insects missed in the data for the last half. The fledglings were observed around the ravine as late as July 25 to be positively identified. As it is certain that the daily consumption of insects did not diminish to any marked extent, the value of these birds as insect destroyers may readily be inferred. The four insects consumed in the largest quantities were found to be as follows: grasshoppers 247, Mayflies 425, moths 237, and cutworms 103. Two of these, at least, are positively destructive insects; and in the summer of 1911 the grasshoppers were almost a plague in parts of northern Iowa. Many fields of grain were destroyed and many more were cut green to prevent destruction, making the oats light weight and of poor quality. The grasshoppers stripped the oats from the straw by cutting the stem of each grain. This was done while the grain was in the milk, so it was a total loss. Many fields which promised from thirty to forty bushels yielded from five to ten bushels to the acre after the grasshopper invasion. As twenty per cent of the food of this family of thrasher consisted of grasshoppers, it can readily be seen this species is of considerable economic importance. A glance at the rest of the list will show that almost without exception, the insects fed to the young were of an injurious character. The feeding of the raisins was for a time a puzzle to all, and at first they were not recognized as raisins; but after being brought several times they were identified. The next question was as to the source of supply. It was observed that only the female brought them. A careful watch was kept around the buildings and she was seen to pick something out of the grass by the kitchen door. On investigation a quantity of raisins was found there and it was learned that a box of them had been accidentally spilled a few days before. The male was not observed to bring any, and as an experiment, a few were placed near the nest. He paid no attention to them for a number of visits, but finally he picked at one several times; then picked it up, carried it to the fence and swallowed it. He made no attempt to feed them to the young, although sev-

Figure 4. Male brooding. Contrast the position of the male with that of the female while brooding as shown in figure 3.

eral times after this he ate one himself. The female on the contrary was never observed to eat one of them, but fed a number to the young from the ones by the nest. The piece of cherry was also placed by the nest to see what the birds would do with it. The male happened to be the first to visit the nest and, after picking at it several times, gave it to one of the nestlings. Most of the beetles were May beetles, and the larvæ were practically all of this form. The unknown insects and worms were of various kinds and were either so badly crushed as to be unrecognizable or else were of a species unfamiliar to those in the blind at that time.

On June 26, about 4 o'clock in the afternoon, it was decided to make an effort to determine the quantity of food received by each nestling, and to that end a colored thread was tied on the leg of each. By frequently observing the position of the young birds in the nest, the color of the leg band, and paying close attention to the changes in position, it was possible to get a record of the food each nestling received. The colors were green, orange, blue, and white, and each nestling will hereafter be designated by the color of the leg band. Green was by far the most enterprising of the four and left the nest several hours before any of the others, and almost a day before Blue, who was the weakest and most sluggish of all.

From June 26 at 4:11 p. m., until Green left the nest on the 28th, at 12:19 p. m., he was fed 152 times; Orange 142 times; White 169 times; and Blue 133 times. Orange was a small and active bird; White was large and inactive, but seemingly possessed of plenty of strength; Blue was weak and timid. White stayed in the nest until almost the time Blue left, but this was due more perhaps to his inactive disposition than to inability to go. During the period of observation, White was fed a total of 205 times before leaving the nest, and Blue only 163 times in the same period.

TABLE IV. AMOUNT OF FOOD EACH YOUNG BIRD RECEIVED

	GREEN				ORANGE				WHITE					BLUE				
DATE: June	26	27	28	*Total*	26	27	28	*Total*	26	27	28	29	*Total*	26	27	28	29	*Total*
Insects, unidentified	3	6	3	12		5	9	14		7	6	4	17			5	1	6
Larvae	1	1	2	4	1	1	5	7	1	3	2		6	1	1	1		3
Spiders	1			1			1	1	1	1			2					
Raisins		2	1	3		3		3		1		1	2		4	1		5
Worms, unidentified	1	3	1	5		2		2	1	1			2	1		1		2
Earthworms	2	3		5					1				1				1	1
Wireworms		1	3	4			1	1		4			4					
Ants		3		3		5		5			3		3		2	4		6
Caterpillars	1			1		1		1			1		1					
Flies										1			1					
Damselflies							1	1		1	1		2					
Dragonflies	1	5		6	1	2		3		2			2	1	1	1		3
Butterflies						1		1			1		1					
Crickets		1	1	2											1			1
Green Worms															2			2
Cutworms	5	5	4	14	6	13	3	22	6	18	4		28	3	7	7		17
Moths		50	11	61		22	13	35	2	31	11	4	48	1	33	17	1	52
Mayflies	7	16	57	80	9	17	54	80	21	23	75	10	129	15	14	58	3	90
Beetles	2	3	2	7	2	3	1	6		4	2	3	9	2	2	3		7
Grasshoppers	2	23	10	35	3	16	17	36		22	14	2	38	4	17	12	2	35
Daily Totals	26	122	95	243	22	91	106	219	33	119	120	24	296	28	84	110	8	230

Total of Orange to time Green left the nest, 200. Total of White to time Green left the nest, 246. Total of Blue to time Green left the nest, 189.

In Table IV it will be seen that, up to the time Green left the nest, the nestlings had received insects as follows: Green 243, Orange 200, White 246, and Blue 189. When one considers that this distribution extended over parts of three days, it will be seen that the parents did well in dividing it up so evenly. The total amount distriubted was 978 insects, or an average of 219 to each young bird. Green and White received slightly over the average, and Orange slightly less. Blue was 30 below the average, but as already stated, he was neither as active nor as large as the others, and possibly this may have had something to do with the result.

Nothing definite was determined, nor could it be expected in so short a series of observations, as to the method of apportioning the food. A number of throats were sometimes tried before the food was finally given to one of the young, but usually this could be attributed to the insect, or insects, being so large they could not be swallowed. When this happened the parent bird would take the insect to some convenient perch and pound it up till it was small enough for the young to swallow. Sometimes it seemed as if chance determined which individual would receive the morsel, and at other times it looked as if there were other factors. There seemed to be a tendency to feed the one nearest the parent bird, and, as the old birds almost invariably approached the nest from the south, it would follow that the nestling on that side would get the most food. However that may be, the young were constantly trying to get to that side of the nest. One would no sooner get into place on that side than another would crowd him out. This was not always the case, for at times the parents would reach over and feed those on the farther side. Again it seemed as if the nestling that made the greatest disturbance received the food. The old birds, the first day or two, of observation, on approaching the nest and finding that the young made no response, would utter a quick "kek" and every head would instantly come up. After a day or two this was not necessary, as the mouths would all be open before the parents reached the nest.

Tables were also prepared to show the difference, if any, in the character of the food procured by the two parents. It was found that practically the same variety was brought by each one. The male brought centipedes on two different occasions; and raisins, flies, and dragon flies were brought by the female and never by the male.

Sanitation.

In the sanitation of the nest the birds were scrupulously clean. The excreta was seized by one of the parents before it touched the nest, except on two occasions, and these at the latter end of the nesting period. Three interesting facts were noted in connection with the passage of the excreta: viz., the young birds made no attempt to void the excreta except when one of the parent birds was present; second, only one of the nestlings voided the excreta at any one visit of the parent birds; and third, almost always the bird fed, or if two were fed, one of the two voided the excreta. The following table will show this latter fact. The data for this table covers only the last two days and a half of observation, as no means of distinguishing the birds was used until that time:

TABLE V.

Showing the relation of feeding and the passage of excreta.

Date.	Excreta from same bird as fed.	From some other bird.	Total.
June 26	12	5	17
June 27	54	2	56
June 28	35	1	36
June 29	3	0	3
Totals	104	8	112

The results of these observations seem to indicate that the feeding may possibly be the direct stimulus to the voiding of the excreta, as out of a possible 112 times 104 sacs of excreta were removed from the nestling receiving the food at that visit, while only eight were removed from different birds. The parents always stopped a few seconds after feeding, pos-

Figure 5. Male removing the excreta from one of the nestlings.

sibly waiting for the appearance of an excreta sac. In the case of the nestling voiding the excreta, there were usually some premonitory signs: viz., general uneasiness, ruffling the feathers, and flirting the tail. Then followed the elevating of the posterior end of the body, and as the sac came away the parent bird seized it and either devoured it or carried it away. See Figure 5.

In regard to disposing of the excreta there did not seem to be any constant behavior. During the first four days of observation, the most of it was devoured by the parents at the nest or carried a short distance and swallowed. The following table will show the total number of times the nest was cleaned. It will be seen from this table that the work of sanitation was about equally divided between the male and female. Compare Table VI with Table VII, which shows the number of times the excreta was devoured by each of the parents:

TABLE VI.

Total number of times the nest was cleaned.

Date.	By male.	By female.	Total.
June 23	9	3	12
June 24	5	4	9
June 26	20	14	34
June 27	18	38	56
June 28	18	18	36
June 29	0	3	3
Total	70	80	150

TABLE VII.

Number of times the excreta was devoured.

Date.	By male.	By female.	Total.
June 23	9	3	12
June 24	4	3	7
June 26	1	3	4
June 27	3	5	8
June 28	1	0	1
June 29	0	0	0
Total	18	14	32

A study of this table will show that on the first day, out of a total of twelve times the nest was cleaned, the excreta was devoured every time; on the second day, June 24, seven out of nine sacs were devoured; on the 26th only four out of thirty-four were devoured; on the 27th, eight out of fifty-six; and on the 28th, one out of thirty-six. On the 29th, only two birds were in the nest, and that only for a short time. This would seem to indicate that the period of devouring the excreta came to an end on the 25th and 26th, for while on the 27th the total number of sacs devoured was as large as on the 24th, yet in proportion to the total it was much smaller. It would seem then that about the eighth or ninth day the old birds ceased devouring the excreta and commenced to carry it away. There were several occasions when the sac broke in the bird's beak; when this happened, the old bird devoured the piece retained in the mouth, then picked up the other and flew away with it. These were not counted in the table relating to the devouring of the excreta, as there was no way of determining whether or not it would have been devoured if it had not broken. When the excreta was carried from the nest there were several distinct modes of procedure. Several times the parent bird flew to a branch in an oak about twenty feet from the nest and then dropped the sac after alighting; occasionally it was dropped just before the perch was reached; at other times it was carried to the perch and then devoured, the beak being wiped on the limb afterwards. While not universally true, the excreta was generally carried to one of three oak trees in the vicinity of the nest and either devoured or dropped. An attempt was made to determine whether there was any periodicity in the voiding of the excreta, but the results were not conclusive. The intervals in each young bird varied from two minutes to over five hours in length, with a majority of intervals from one to one and a quarter hours in duration. The four nestlings seemed to get equal attention in this particular: Green was attended 27 times; White 38 times; Blue 25 times; and Orange 22 times. White and Blue were in the nest about

twenty-four hours after Green left, and about fifteen hours after Orange left. Blue, during the time the others were in the nest, received the least attention; the excreta being removed from him only twenty times up to the time of Green's departure. White received the most attention, thirty-four times in the same period, while Orange was attended twenty-one times.

Departure of the Young.

At about noon, June 28, the young birds became very restless, especially Green and Orange. They were continually crawling out of the nest and back again. At 12:20 p. m. Green crawled out of the nest and sat chirping for a short time. He then spread his wings and made an attempt to fly, but only succeeded in going a few inches. Immediately on falling he commenced to hop rapidly away; stopping a short interval at a fence about ten feet distant. One of the old birds returned at this time and coaxed him along until he reached the top of a little hill some sixty yards away. Here he stayed for some time, being fed at intervals by the old birds. One of the parents was with him most of the time from now on. From the time he left until 2:40 the female never visited the nest, and when she returned, the male went away and came back only once the rest of the afternoon.

At 2:10, Orange left the nest in much the same way. The male went with him and by coaxing him a short way at a time soon had the second nestling on the little knoll occupied by Green. The male busied himself the rest of the day caring for these two while the female fed White and Blue in the nest.

The next morning White started away at 7:07 and was coaxed along by the female for about thirty yards. Blue remained alone in the nest until 7:45, being fed only once in the interval, though White was fed three times. 7:45 Blue left the nest, but no parent bird returned to aid in the journey as long as the observations were continued. At 8:15, when the observations ceased, Blue was still alone in the grass.

Later all four of the fledglings were found in the ravine near by. They were noticed here several times, July 25 being the latest date on which they were positively identified. At this time the strings were still on their legs, but were so faded that no particular color could be recognized.

Sioux City, Iowa.

Figure 6. Female inspecting the nest. The white spot on the head is faintly visible.

A STUDY OF THE AVIFAUNA OF THE LAKE ERIE ISLANDS.

(With Particular Reference to the Migration Phenomena.)

BY LYNDS JONES.

(Continued from page 18.)

The summer study on Pelee Island in 1910 began on July 16, when two men, accompanied by their wives, landed at the camping ground on Fishing Point among the red cedars. Except for one visit of a night and a day to oversee the work on the part of the writer, these two men continued the work without other assistance for two weeks, at the end of which time the remainder of the company reached the island. The entire company was composed of nine men and two women and the teacher. The two men and their wives left on August 26, and on September 2 one of the remaining men was taken to a hospital in Sandusky. On this same day two other men came to our camp and remained with us until our final departure on the 7th of September. While these two men were visitors they assisted in the work. It will be seen that the work began early enough to make a thorough study of the avian conditions of the island before the migrations began, thus affording interesting studies of the ecological conditions of the summer resident birds, and furnishing means of comparison between the summer status and the conditions during the migrations.

It must be understood that there was no such intensive study of the island as a whole as was made of the Fishing Point and its immediate environs, but enough study of the whole island was made to give a fair idea of the conditions as far as the bird life is concerned.

Quite contrary to what we had been led to suppose, Pelee Island is by no means one big marsh bordered by a lake beach all around. Nearly the whole southern fifth of the island is high ground underlaid by lime rock, presumably of the Niagara formation. A somewhat

rounded area one mile in width by nearly a mile and a half in length of similar high ground underlaid by stone occupies the eastern side, a little north of the middle, and an area of about half the dimensions occupies the middle and base of the north-eastern point, while a larger area forms the north-western point, extending also to the middle of the North Bay, and down the west shore nearly two miles. The interior, which is more than half surrounded by these high limestone areas, was once a marsh, but all of it has been drained out and is cropped every summer. The staple crop is tobacco — the same kind that is raised in Kentucky. Corn, oats, wheat, and potatoes are also grown. The only swamps upon the island now are a somewhat extensive one which occupies the north end of Light House Point. This covers an area rather less than 500 acres. There is a smaller marsh bordering the middle of South Bay, and one of perhaps thirty acres on the east side of the base of Fishing Point. There is also a very small muck swamp, of much less than an acre, on the west side of Mosquito Point. Thus the conditions which prevail on this island are now quite dissimilar from those on Point Pelee as reported by Taverner and Swales.*

Of course Fishing Point runs out into the lake much as the extreme point of Point Pelee does, and conditions here are the same. It might be said, however, that conditions on Fishing Point are much nearer primitive than is the southern end of Point Pelee. Fishing Point contains no dwellings, and the single narrow road is almost no disturbance to the forest. We were told that in the earlier days the island was densely wooded with red cedars. There is still evidence that the higher areas were covered by deciduous forests.

That Fishing Point is gradually being shifted west there is abundant evidence in the cutting away of the east beach and the building up of the west beach, as well as the submerged roots and stumps of huge trees now rods from the east beach. Every year witnesses the overthrow of trees, some of them of more than a foot in diameter, on the east

* Wilson Bulletin 19, p. 39 *et seq.*

side of the Point, and the self-planting of trees on the west side. The series of parallel ridges are parallel to the west side, but not to the east side.

A summary of the work done follows in the language of two of the students, supplemented later by a list of the birds and their dates of occurrence. These reports undertake to give a brief survey of the more prominent ecological features that have some bearing upon the distribution of the birds.

Report on the Ecology of Pelee Island, Summer of 1910.

Part I.

bird conditions before the beginning of migrations.

Before the beginning of the migrations the birds were divided into four distinct groups ecologically; one of which has several further subdivisions. These are the birds found in the woods on the point, the marsh birds, the water and beach birds, and the birds found inland, mostly about cultivated fields or small woodlots.

Under the first group, that of the woods birds, there are three subdivisions, the birds of the cedars, the birds of the deciduous belt, and the birds that frequented both indiscriminately.

The birds found distinctively among cedars were the Screech Owl, Cardinal, Cedar Waxwing, Pine Warbler, and Brown Thrasher. Of these Cardinal, Cedar Waxwing, and Thrasher deserve especial mention because of their great abundance, especially considering the northern locality. The Pine Warbler must have nested there, which is a good record. The Screech Owl was probably seen only in the cedars because we were there most after dark.

Of the birds seen only in the deciduous belt, the Hairy, Downy and Red-headed Woodpeckers stayed among the tall trees with dead tops, found at the base of the point. The Blue Jay, Warbling Vireo and Crested Flycatcher, as well as the Black-billed Cuckoo, also stayed in these tall trees, among the dense foliage. The Towhee and Catbird stayed in the

dense thickets south and west of the marsh, while the Woodcock frequented the damp woods west of the marsh. The Wood Pewee, Northern Yellow-throat and Redstart stayed mostly in the lower deciduous trees on the point itself.

The Mourning Dove, Yellow-billed Cuckoo, Flicker and Crow were found indiscriminately in the woods and in about their usual numbers. The Robin, Bronzed Grackle, Song Sparrow and Baltimore Oriole were present indiscriminately, but in smaller numbers than is usual on the Ohio shore. The Carolina Wren was also present in small numbers, which is unusual for so northern a locality. The Kingbird, Orchard Oriole, Indigo Bunting and Red-eyed Vireo were present in unusual abundance, especially the two last mentioned.

The Marsh birds, which had presumably bred in the swamp on the island, were the Wood Duck and Blue-winged Teal, the Least and American Bitterns, the Green and Great Blue Herons, the King, Virginia and Sora Rails, the Florida Gallinule, the Short-eared Owl, Belted Kingfisher, Phoebe, Alder Flycatcher, Red-wing, and Long-billed Marsh Wren. Yellow Warblers and Louisiana Water-Thrushes may also have nested here. The Black Terns nest in swamps, but at the time of our visit were plainly beach birds. They probably do not nest on the island.

The birds found flying over the water and lighting on the beach were the Herring Gull, Common and Black Terns, Spotted Sandpiper, and Killdeer. The Belted Kingfisher divided his time about equally between the beach and the swamp. Some Common Terns were still nesting on Middle Island and the Hen and Chicken group, but most of the gulls and terns were through nesting, and gathered on the end of the sandspit in immense numbers, standing there much of the day. The Black Terns were in the curious mottled, molting plumage very largely.

In the pastures and cultivated fields inland were some species, such as the Bobolink, Meadowlark, Vesper and Field Sparrows and Migrant Shrike, which never came upon the point. Around the houses and orchards were a few House

Wrens and Bluebirds, although they were much less common than in Ohio. In the bits of woodland and in great trees left in the open fields were the nests of Bald Eagles, and Red-shouldered and Red-tailed Hawks, and Great Horned Owls were also found in the woods.

Part II.

MIGRATION CONDITIONS.

During the migrations there were four, or possibly five, different groups. Some worked south by stages, resting at night in the swamps, others followed the beach, or flew out over the water, some flew right out the point from base to tip, either continuing their flight all the way, or lighting in the trees occasionally to rest; but by far the greatest number of birds worked along gradually through the woods, only starting in their flight when they reached the limit of shrubby vegetation. These are the birds that cannot often be seen in the act of migrating, and which Pelee Island is especially suited to catch in the act.

The Swamp-frequenting migrants were the Pied-billed Grebe, Mallard, Coot and Black Duck, where there was open water; the Wilson's Snipe, Yellow-legs, and Solitary Sandpiper on the mudflats. The Least, Semipalmated, Baird's and Spotted Sandpiper and the Killdeer and Semipalmated Plovers occasionally visited the mudflats, although usually staying on the beach. The Little Blue Heron, a straggler from the south, may as well be mentioned here. Its occurrence so far north is rare, but not unprecedented. The Rails and Herons were probably migrating, but we could not detect their movement with certainty.

Over the water migrated the Bonaparte Gull and Caspian Tern, and along the beach came a host of shore-birds. The Dowitcher, Knot, Baird Sandpiper, Hudsonian Godwit, and Black-bellied Plover were some rarities that were seen; the Baird Sandpiper in considerable numbers. The Least, Semipalmated, and Spotted Sandpiper, the Sanderling, the Ruddy Turnstone, and the Piping, Semipalmated and Killdeer Plo-

vers were all seen in unusual numbers. Only the Pectoral and Red-backed Sandpipers were seen more rarely than might have been expected.

Of the birds that flew over the trees, the Swallows and Blackbirds were easily the most noticeable, the former flying in loose aggregations, the latter in compact flocks. The Swallow bands were usually composed of all the species, but with a decided predominance of one or two kinds. At first the commonest were the Rough-winged, but soon the Bank also became prominent, only to be outnumbered in turn by the Purple Martin. The Barn Swallows were always present in good numbers, but the Tree and Cliff Swallows, while usually present, were never seen in large numbers. The Swallows migrated mostly before 9:00 a. m. and after 5:00 p. m., but on favorable days a steady stream would be passing from morning until night. Of the Blackbirds, the Bobolinks came past in flocks of Bobolinks alone, ranging in number from twenty-five to three or four hundred. Red-wings, Bronzed Grackles and Cowbirds came in flocks mostly of one species, but containing also some individuals of the other two. Blackbirds (including Bobolinks) were only seen passing in the morning and at night, not in the middle of the day. Once an enormous flock of Grackles was found scattered and feeding around the west end of the swamp. The passing Redwings also often paused at the swamp. After passing the base of the point, however, they did not usually light again.

The Swallows were usually accompanied by a few Chimney Swifts; and Nighthawks, Ospreys and Marsh Hawks were also seen migrating, flying usually high in the air. The Marsh Hawks seemed to migrate usually in pairs.

The Goldfinch, Rose-breasted Grosbeak and Bluebird migrated singly or in small companies, and lit, here and there, in the trees to rest. They act much like the Bluebirds, but light more. The Mourning Dove, Flicker, Red-headed Woodpecker, and Kingbird traveled in small, loose, companies, which in the case of the last mentioned, almost reach the dignity of flocks sometimes. They light even more than the

Goldfinches and Bluebirds, almost always stopping to rest and discuss the matter before starting out for the crossing to Middle Island. The Sharp-shinned Hawk and Goshawk hang on the skirts of the great warbler and thrush flocks, taking their toll of victims, and necessarily lighting to devour them. The Ruby-throated Hummingbird does not really light, but is mentioned here because of its habit of stopping to hover in front of a primrose blossom before speeding on close to the sand and off over the water.

Of the birds that worked out through the woods there are three groups, the flycatchers, the thrushes, and the warblers. The Purple Finch, House Wren, Blue-gray Gnatcatcher and Red-breasted Nuthatch also came down the point in this way. The Red-breasted Nuthatches and Blue-gray Gnatcatchers seemed to prefer the cedars to the deciduous trees. The Thrushes were satisfied with anything that kept them well concealed and out of sight. The Flycatchers had no choice, as far as I could see. The little red dragonflies (Sympetrum rubicundulum) that formed a large part of their food, were equally numerous everywhere. Early in the season, the warblers seemed to prefer the red oaks, usually surrounded by cedars, but later they were perhaps crowded out into the cedars, for they often left the oaks empty, while the cedars near by were full. In the great jams, the cedars and oaks alike were packed with birds. The warblers seemed to eat mostly small spiders and beetles, which they gleaned from the branches.

Of the flycatchers, the Olive-sided kept mostly to certain favorite tall, dead tree-tops, just south of the swamp. Occasionally we could get a look at one with the shining flank feathers over the wing, making a most striking field-mark. The Least, Acadian, and Yellow-bellied Flycatchers were all exceedingly numerous, especially the first. They were found everywhere, throughout both cedar and deciduous belts.

The Wood, Wilson, and Olive-backed Thrushes arrived just as we were about to leave. They kept so closely to the underbrush a satisfactory identification was extremely difficult.

The fall warblers were present in almost unbelievable numbers. The Golden-winged, Cape May, Pine, Palm, Prairie, and Connecticut Warblers and the Water-Thrush were species, usually rare, that were seen there in numbers, the Cape May and Water-Thrush being exceedingly abundant on some days. The commonest of the warblers were the Cape May, Black and White, Magnolia, Bay-breasted, Blackburnian, Black-throated Green, and Redstart. All these were exceedingly abundant at some time. On the big warbler days, all of the species just mentioned, together with the Water-Thrush, Louisiana Water-Thrush, Nashville, Tennessee, Black-throated Blue, Cerulean, Chestnut-sided, Black-poll, and Canadian deserved a better mark than "common." The Blue-winged, Golden-winged, Pine, Palm, Prairie, Connecticut, Mourning, Wilson, and Oven-bird were seen time after time. Almost every day these warblers were all present except the extreme rarities, and almost all of them were seen in every plumage, from the full adult to the most disguised youngster. It was a chance to study fall warblers that none of us will ever see the like of again, and we certainly improved it.

In all, 138 kinds of birds were seen on the island. Of these, 85 breed in the latitude, and may be considered as summer residents, 51 are clearly migrants and 2, the Little Blue Heron and Goshawk, are stragglers.

Part III.

MAMMALS OF THE ISLAND.

The only mammals seen were the cotton-tail rabbit, the black and fox squirrels, and the deer or white-footed mouse. It is peculiar that no grey squirrels were seen. Mr. Ackley reported seeing one, however, and perhaps it was due to our lack of observation. The black squirrels were very large and fine specimens. One fox squirrel was found far out on the point, where there was nothing but small shrubs, and killed with a stick. Its presence there was probably due to sympa-

thetic migration. There were signs of muskrats, but the animals themselves were not seen.

Part IV.

REPTILES AND AMPHIBIANS.

Blandings Turtle was the only turtle found in the marsh on the point. Snapping turtles and Margined Turtles (Chrysemys marginata) were found in the canals on the island.

The American Toad and Pickerin's Tree-frog were fairly numerous away from the water, and in the swamp were the Leopard Frog and Bullfrog.

In the lake, swimming around, and occasionally ashore, were found both the common Watersnake (Natrix fasciata sipedon) and the Red-bellied Watersnake (Natrix fasciata erythrogaster). Along the shore and among the cedars were found the Puffing Adder (Heterodon platyrhinus), the Milk Snake (Osceola doliata triangula) and the Garter Snake (Eutania sirtalis sirtalis). Toward the base of the point was found a Black Snake (Bascanion constrictor). In the heavy deciduous timber, climbing the trees, were found several Pilot Snakes (Coluber obsoletus obsoletus). One was brought to my attention by a troop of about fifty warblers, which had gathered about one in a tree about sixty feet high. One of these was the largest snake we killed, measuring five feet and three inches in length.

Part V.

LEPIDOPTERA—BUTTERFLIES.

Anosia plexippus. Monarch.—Common everywhere. Seen migrating and resting in large flocks.

Papilio cresphontes. Giant Swallowtail.—Common among the trees on the point. Seen migrating with A. plexippus.

Papilio asterias. Eastern Swallowtail.—Common.

Papilio turnus. Yellow Swallowtail.—Fairly common on point.

Papilio troilus. Spice-bush Swallowtail.—Common. Seen migrating with A. plexippus.

Pieris rapae. Cabbage Butterfly.—Common. Seen migrating

Colias philodice. Clouded Sulphur.—Common inland. Seen migrating.

Grapa interrogationis. Question sign. — Common, especially at the kitchen garbage hole.

Grapta comma. Comma. — Common, especially at the kitchen garbage hole.

Pyrameis atlanta. Red Admiral.—Fairly common. Migrated in small flocks by itself.

Vanessa antiopa. Mourning-cloak.—Fairly common around camp.

Argynnis aphrodite. Aphrodite Fritillary. Common on Milkweed and Loosestrife flowers, around the swamp.

Brenthis bellona. Meadow Fritillary.—Fairly common inland.

Phyciodes tharos. Pearl-spot.—Common everywhere.

Lycaena sp. Little Blue.—Common in places inland.

FRANCIS M. ROOT.

Fishing Point of Pelee Island proved to be an excellent place for fall bird study. Within a range of three miles there were suitable feeding grounds for all kinds of birds — sandy beaches, rocky ledges, open water, heavy woods, both deciduous and coniferous, open fields, bushy pasturelands and swamps with heavy undergrowth, cat-tails, mud flats and open water.

The summer birds offered no especial peculiarities. The absence or at least rarity of the Wood Thrush, Warbling Vireo, Oven-bird, White-breasted Nuthatch, and Chickadee was noticeable. Cardinals were common, although it was the northern extremity of their range. Eagles seemed to thrive on the island despite the fact that they were shot with impunity. At least ten individuals were seen.

The migrations brought many rarities, especially in the line

of shore birds. The records for the Dowitcher, Knot, Baird Sandpiper, Hudsonian Godwit, Black-bellied Plover, Caspian Tern, Piping Plover, and Little Blue Heron show that the water and shore birds of Lake Erie have not yet been exhaustively studied. Among other unusual records were the Olive-sided Flycatcher, Goshawk, Golden-winged Warbler, Connecticut Warbler, and Blue-winged Warbler. The Cape May Warblers were almost abundant and were common about Oberlin on the 17th of September.

There were three big migratory waves. The first occurred on August 12, and consisted almost wholly of Swallows. About 8000 passed over.

The second wave was on August 27. Besides bringing many swallows and bobolinks, the first batch of warblers arrived. The Redstarts were predominant. The warblers stayed almost entirely in the deciduous trees at the base of the spit.

The third and biggest migration reached its height on September 1, and lasted through the third. On the morning of the first all living beings seemed unduly excited. Butterflies, squirrels, and rabbits, as well as all kinds of birds, worked down towards the end of the spit. Almost no birds were to be seen around the swamp. The movement continued through the next two days, but on the fifth almost everything had left. During this movement the following migrating birds were common: Bobolink, Purple Martin, Least Flycatcher, Red-headed Woodpecker, Black and White Warbler, Blackburnian Warbler, Bay-breasted Warbler, Wilson Warbler, Red-breasted Nuthatch, Chestnut-sided Warbler, Black-poll Warbler, Magnolia Warbler, Wilson Thrush, Olive-backed Thrush, Cape May Warbler, Black-throated Green Warbler, Black-throated Blue Warbler, Oven-bird, Water-Thrush, Louisiana Water-Thrush, and Nighthawk.

The food of the birds while on the spit was not accurately determined. The sandpipers and plovers ate lakeflies and their skins, washed up on the beaches. The redstarts were eating common flies most of the time, while in the cedars all

the warblers lived on insects. They did not touch the cedar nor dogwood berries, but did eat grapes at times.

The warblers always kept on the side of the point most protected from the wind. In those localities where there was an abundance of both cedars and deciduous trees the warblers seemed to shift back and forth between the oaks and the cedars indiscriminately. The red and chestnut oaks were by far the most popular of the deciduous trees, although the sycamores and sugar maples were favored. Warblers could almost always be found in the willows and button-bushes about the swamp. They were rarely found in ash trees.

The vegetation of the point was very peculiar. It had the general southern aspect of all Lake Erie sandspits, but was lacking in those prime features, the cottonwoods and willows. Among the plants which we do not find commonly about Oberlin were the hackberry, chestnut oak, arrow-wood, snowberry, sweet-scented sumach, wafer ash, red cedar, common juniper, western prickly pear, red ash, blue ash, green ash, and red bearberry. The absence of the chestnut, beech, hornbeam, horse chestnut, and smooth sumach were noticeable.

WOODY PLANTS ON FISHING POINT.

Red Maple.—Common at extreme base.
White Maple.—Common at extreme base.
Sugar Maple.—Abundant in the deciduous belt.
Hackberry.—Common in the deciduous belt.
White Ash.—Fairly common, except among the cedars.
Black Ash.—?—in the deciduous belt.
Green Ash.—Common in the deciduous belt.
Red Ash.—Fairly common, except among the cedars.
Blue Ash.—Common, except among the cedars.
Honey Locust.—Uncommon.
Black Walnut.—A few on the east shore.
Red Cedar.—Abundant.
Red Mulberry.—Scattered.
Hop Hornbeam.—Common.
Sycamore.—Fairly common.

Cottonwood.—Bunch on beach east of swamp.
Large-toothed Aspen.—A few on west shore.
Quaking Aspen.—A few on west shore.
Sand Cherry.—Fairly common on west shore.
Choke-cherry.—Fairly common on west shore.
Red Oak.—Abundant in deciduous belt.
Chestnut Oak.—Abundant in deciduous belt.
Basswood.—Common in deciduous belt.
White Elm.—Common in deciduous belt.
Swamp White Oak.—Common north of swamp.
Willow.—Three varieties, mostly on west shore.
Slippery Elm.—A few on end of point.
Sheep-berry.—Scattered through deciduous belt.
Arrowwood.—Fairly common in deciduous belt.
Gooseberry.—Fairly common in deciduous belt.
Hickory.—Fairly common on west beach.
Snowberry.—Fairly common in cedar belt.
Elder.—Fairly common about swamp.
Thorn.—Two varieties, north of swamp.
Sweet-scented Sumach.—Abundant.
Staghorn Sumach.—Abundant south of swamp; common elsewhere.
Poison Ivy.—Common, except in cedar belt.
Raspberry.—Fairly common.
Woodbine.—Scattered.
Wafer Ash.—Abundant on west beach.
Common Juniper.—Common in cedar belt.
Western Prickly Pear.—Common in cedar belt.
Red Bearberry.—Fairly common in cedar belt.
Smooth Honeysuckle.—A few near end of point.
Perfoliate Honeysuckle.—A few near end of point.
Kinnikinnik.—Fairly common on west beach.
Rough-leaved Dogwood.—Common.
Shrubby Bittersweet.—Scattered through deciduous belt.
Buttonbush.—Abundant in swamp.
Swamp Rose.—Common in swamp (?).
Early Wild Rose.—Fairly common (?).

Glossy Rose.—Scattered (?).
Sweetbrier.—Scattered.
Wild Grape.—Abundant.
Greenbrier.—Common in deciduous belt.
Virginia Creeper.
Dodder.
Running Euonyms.
Wild Clematis.
Trumpet Vine.

ONCE UNDER CULTIVATION.

Apple. Peach.

T. N. METCALF.

THE WILSON BULLETIN

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Editorial

We are pleased to note that the revised edition of Mr. Frank M. Chapman's "Handbook of the Birds of Eastern North America" is ready for distribution. It is undoubtedly true that the first edition of this unexcelled book has exerted a greater influence than any other book upon the people of this country and therefore is the direct cause of the awakened public interest in birds. The enlargement and improvement of the present edition should continue this good work.

—o—

What has happened to the Robins and Bluebirds? While there are still many Robins throughout the country, it is clear that there are fewer than usual. Bluebirds are still present, but in such diminished numbers that it is common remark that there are almost none. Robins in large numbers spent the excessively cold winter in the south-

ern and eastern parts of Ohio, and it was stated in local papers that many were frozen or starved to death during the latter part of March. It seems probable that a like fate overtook many of the Bluebirds.

———o———

The cold winter, followed by a late spring in the central districts and the promise of a cool summer, are likely to result in a temporary pushing south of the breeding ranges of birds in the lower lake region where there appears to be some instability as to certain breeding birds. At the present writing (June 5) Olive-backed Thrushes are still present and singing at Oberlin — an unprecedentedly late date. It is not likely that this species will breed here even this summer, but it may be indicative of an inclination on the part of birds like the White-throated Sparrow, Black-throated Green Warbler, Black-poll Warbler, and others to remain to breed, contrary to their usual custom. A careful scrutiny of the summer fauna will not be amiss in any region.

———o———

The paper dealing with the detailed study of a Brown Thrasher's nest, the first article in this number, is another of the carefully worked out studies of that part of the life history of a species which is greatly needed in our intimate studies of the birds as a means of a thorough understanding of their place in nature. It is needless to say that the paper represents an amount of painstaking work which no one who has not undertaken something of the kind can begin to appreciate. It may be objected that the printing of the details of each of the 775 visits of the parents to the young is uncalled for; but we would remind the possible objector that this is pioneer work and details are necessary for the laying of a sure foundation for the further work which we earnestly hope may follow this work.

General Notes

NEW JERSEY NOTES.

December Birds in Northern New Jersey.—On December 24, 1911, while making a sectional census in several northern New Jersey towns, seventeen species of birds were located, and of which four hundred and fourteen individuals were recorded.

The towns passed through in making this census included Caldwell (Essex County), Pine Brook, Horse Neck, Towace, Lincoln Park, and Mountain View (Morris County), a distance of fifteen and one-half miles of much diversified country, and over a period of five and one-half hours. The weather throughout the day was rather warm and very humid and the sky overcast with heavy storm clouds. The species observed were: Flicker (2), Junco (32), Song Sparrow (3), Blue Jay (21), Tree Sparrow (29), White-breasted Nuthatch (5), Downy Woodpecker (3), Herring Gull (1), Starling (25), Chickadee (5), Crow (130), Meadowlark (4), Brown Creeper (2), Goldfinch (79), Tufted Titmouse (17), Bluebird (5), and Myrtle Warbler (1).

In addition to the above records, the following were observed prior to the above date: Sparrow Hawk, Golden-crowned Kinglet, Robin, White-throated Sparrow, Kingfisher, Sharp-shinned Hawk, Fox Sparrow, Marsh Hawk, and Barred Owl. These latter added to those observed on the 24th makes a total of twenty-six species for the month, which is, indeed, a fair list for this portion of New Jersey.

Duck Hawks on Newark Meadows and Vicinity.—During the past winter Duck Hawks (Falco peregrinus anatum) have been unusally common on the Newark Meadows and vicinity. They were observed near the Plank Road and Passaic River Bridge on January 29th, February 20th and 24th, 1912.

Prior to the above dates I have found this bird only twice before in northern New Jersey. Both of the former records were made at Greenwood Lake on November 3, 1907, and February 6, 1910.

Hermit Thrush in Passaic County, N. J.—On May 27, 1910, a completed nest of this species was located among the low hills of West Milford Township, near the Orange County Line, in a low laurel bush about six inches from the ground and contained a clutch of four eggs, bluish green in color. The nest was composed of bark, grasses and pieces of grape-vines and lined with fine roots and grasses, deeply cupped and compactly formed. On June 10th,

I again visited this nest and found both parents assiduously caring for the young, which appeared about five days old.

As far as I can learn this is the only nest of this species which has been found in New Jersey up to this time. On a number of occasions during the past seven years, while in this neighborhood, I have found the Hermits here during the summer months, but up to the above date never located the least indications of their breeding and rearing young here. There are many Wilson Thrushes present here throughout the late spring and summer months also, but have never found them nesting here.

EARLY TREE SWALLOWS.—On March 30, 1912, a pair of Tree Swallows were seen circling about over the Newark Meadows near Harrison, N. J., for over a half hour. This is the earliest date this bird has been observed so far north in New Jersey during the past decade. The birds appeared perfectly contented, and when they left, they were headed in a northerly direction towards the Hackensack Meadows.

APRIL BIRD NOTES.—At Pompton Lakes, in northern New Jersey, on the 13th and 14th of April, 1912, I found numerous birds which, from previous observations in this locality, would appear of unusual interest and worthy of more than passing notice, and below is appended an annotated list of the species obs rved on these days. The 13th was warm and showery and the 14th marked by light misty rains and a slight drop in the temperature.

(1) *Colymbus auritus*—Horned Grebe. A pair of these birds seen on Pompton Lake on the 14th. Both still retained the winter plumage. This is the only record of this bird I have for Passaic County.

(2) *Gavia immer*—Loon. One female was found diving, swimming and flying about over the lake on the 14th. This is also a new bird for Passaic County. In fact, it is the first record I have for the state.

(3) *Larus argentatus*—Herring Gull. Nine of these were found on and over the lake on the 13th. This is the first of this species to appear in this neighborhood since August 30, 1903. One was observed at Lincoln Park, ten miles to the south, on December 24, 1911.

(4) *Nettion carolinensis*—Green-winged Teal. A male of this species was found on the lake on the morning of the 14th. This also is a first record for Passaic County.

(5) *Zenaidura macroura carolinensis*—Mourning Dove. Six were

seen on the 14th near the Steel Works at the southern end of the lake.

(6) *Pandion haliaetus carolinensis* — Osprey. Two were seen diving and fishing in the lake on both days near the upper end.

(7) *Strix varium*—Barred Owl. One male seen on the east shore of the Pequannock River on the 13th.

(8) *Ceryle alcyon*—Belted Kingfisher. Four were seen on the 13th and three on the 14th.

(9) *Dryobates pubescens medianus*—Downy Woodpecker. But one was found on the 14th on the south shore of the lake in a copse of conifers.

(10) *Colaptes auratus luteus*—Flicker. Common on both days throughout the borough.

(11) *Sayornis phœbe*—Phœbe. One was observed on each day.

(12) *Cyanocitta cristata*—Blue Jay. Were seen commonly on the 13th. But three were found on the 14th.

(13) *Corvus brachyrhynchos*—Crow. Common all over the borough on both days.

(14) *Sturnus vulgaris*—Starling. Common on both days in the residential section. Rare in the rural parts.

(15) *Molothrus ater*—Cowbird. Two were found on the 13th and four on the 14th.

(16) *Agelaius phœniceus* — Red-winged Blackbird. Common about the lake on either day.

(17) *Sturnella magna*—Meadowlark. Common on both days, especially in the old stubble fields.

(18) *Carpodacus purpureus*—Purple Finch. One found near the Steel Works on the 14th.

(19) *Quiscalus quiscula*—Purple Grackle. Common on both days throughout the borough.

(20) *Astragalinus tristis*—Goldfinch. Common on the 14th on all sides. None seen on the 13th.

(21) *Pooecetes gramineus*—Vesper Sparrow. But one was seen and heard on the 13th. None on the 14th.

(22) *Zonotrichia albicollis*—White-throated Sparrow. Two were located in a copse of conifers on the south shore of the lake on the 14th.

(23) *Spizella passerina*—Chipping Sparrow. Common on both days, on the roadside especially.

(24) *Spizella pusilla*—Field Sparrow. Common on both days throughout the borough.

(25) *Junco hyemalis*—Slate-colored Junco. Common on both days in the more rural sections.

(26) *Melospiza melodia*—Song Sparrow. Common on both days throughout the section.

(27) *Hirundo erythrogastra*—Barn Swallow. Two were observed in company with the Tree Swallows over the lake on the 14th.

(28) *Iridoprocne bicolor*—Tree Swallow. Six were found on the lake during the morning of the 13th. On the 14th they were common over the lake all day.

(29) *Anthus rubescens*—Pipit. One was seen near the Pequannock River on the 13th.

(30) *Sitta carolinensis*—White-breasted Nuthatch. One found at the Steel Works on the 14th.

(31) *Planesticus migratorius*—Robin. Common on all sides on both days.

(32) *Sialia sialis*. Common on both days throughout the borough.

April 16, 1912. LOUIS S. KOHLER.

BIRDS AND CATS.

The Audubon Society of Massachusetts, a branch of the great national association, of which there are tens of thousands of members in this country, is appealing to the people to assist in the protection of birds by not allowing their cats to roam during the season when young birds are leaving their nests.

In a fruit-growing section like North East, where thousands of dollars worth of apples and other fruits are destroyed every year by insect pests, and where spraying and other measures are imperatively necessary to hold these pests in check, we need every available bird to pull with us in fighting the noxious insects.

Here in town hundreds of young birds might be saved every spring if those who own cats would not allow them to roam at pleasure during the nesting season.

This is looking at the matter from an economic point of view. There is another view that appeals as strongly to the writer, and that is the pleasure of seeing the wild birds and hearing their cheerful songs.

Many birds come from the woods to town for better protection of themselves, their eggs and their young from the owls, hawks, crows, shrikes, squirrels, skunks, weasels, minks, and last, but not

least, from the boys with guns. The better we protect them the more of them will come.

Since spring shooting of ducks has been prohibited in New York, thousands of ducks winter in waters of the central part of that state. Those that stay north are not limited to the hard-weather kinds, but include those that naturally would go south, were it not for the fact that they prefer to endure the rigor of a northern winter rather than risk their lives by being constantly harassed by the shotgun at the south.

Palm Beach and some other winter resorts in Florida prohibit shooting within a mile of town. Pelicans, ducks and other wild water birds resort to these places and soon become so tame one can approach within a boat's length of some of them.

These instances show that birds are not slow to appreciate efforts in their behalf and to take advantage of them.

Is the reader among those who regret the seeming decrease year by year in the number of birds hereabouts? Do you realize that your cats are feasting on dozens of baby birds each year, and thereby making you partly responsible for such a condition? Birds and cats don't go well together. If you have a cat and don't need one, how would it strike you to open negotiation with some boy to eliminate her? Thereby you would do a commendable act in a good cause.

The birds will soon begin to return from the south. We will enjoy having the wrens, the bluebirds, the flickers, the catbirds, the yellow warblers, the orioles, and other birds that nested on our premises last year come back to us again this spring. We will greet their coming as though it were friends in human form, and will try to make it unpleasant for any of the feline tribe that roam about our garden when the young birds are learning to fly.

North East, Pa., March 20, 1912.

B.

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ELECTION OF OFFICERS FOR THE YEAR 1912.

Balloting for Officers for the year 1912 resulted in the selection of W. E. Saunders, London, Ont., for President; Bradshaw H. Swales, Grosse Isle, Mich., for Vice-President; C. W. G. Eifrig, Addison, Ill., for Secretary; W. F. Henninger, New Bremen, Ohio, for Treasurer; Frank L. Burns, Berwyn, Pa., J. H. Fleming, Toronto, Ont., and Lynds Jones, Oberlin, Ohio, for the Executive Council.

For most of the offices the vote was very close.

Bald Eagle's Nest on Pine Island. The eaglet can be seen projecting slightly above the rim of the nest where it had crowded out to avoid Baynard. (Photo by Baynard.)

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A MARCH BIRD LIST FROM THE CALOOSAHATCHEE RIVER AND LAKE OKEECHOBEE.

BY FRANK M. PHELPS.

The species appearing in this list were observed between March 2d and 13th, 1912, principally on a motor boat trip from Fort Myers to Lake Okeechobee in company with Oscar E. Baynard, the warden of the National Association of Audubon Societies, who was going into this region to search out rookeries of Egrets, with the view of having them guarded.

Because of certain points of interest we have included the notes of a one-day trip, taken March 2d, down the Caloosahatchee River to Sanibel and Pine Islands, lying in the Gulf just off the river mouth. The primary purpose of this trip was to visit an Eagle's nest on Pine Island, previously known to Baynard, with the view of taking a series of photographs of the big, six weeks' old eaglet, who was its sole occupant. This nest was about fifty feet up in a pine, but the strong wind blowing off the Gulf and lack of space to operate in made photography somewhat difficult. By posing the youngster on one edge of the nest or a nearby limb and backing out onto a limb on the opposite side, success was finally achieved and several good pictures obtained.

We started for Lake Okeechobee on the afternoon of the 4th, in Baynard's motor boat, "The Egret," towing a canoe

for use in the shallow waters that abound in the Everglades. The Egret served not only as a means of transportation, but as a home as well. She was equipped with bows over which a canvas covering could be drawn to keep off rain or dew. In the stern we carried a gasoline stove, as fuel is difficult to obtain in this region, and by slipping a board between the lockers running down the sides a bed could be quickly arranged. This latter is a somewhat necessary provision to make as the sleeping out on the ground is hardly to be recommended in a place where nature has been so lavish with reptiles and insects as in the Everglades.

One extra passenger was carried in the person of a young Caracara, taken by Baynard late in February in the Indian Reservation of the Big Cypress country. His particular duty was to pose for pictures at regular intervals, but the rapid traveling and the rather miscellaneous diet we were forced to offer did not suit "Holiwakus," as Baynard had affectionately dubbed him, and he sickened and passed away at Lake Okeechobee on the 10th, not, however, without having served his purpose to some degree.

From Fort Myers, following the winding Caloosahatchee River and the drainage canals, it is approximately one hundred miles to Lake Okeechobee. In its lower course the Caloosahatchee is a broad and imposing river, averaging about two miles in width. A few miles above Fort Myers it narrows rapidly and soon becomes quite an ordinary stream. Up to the vicinity of LaBelle and Fort Thompson its banks are as a rule well wooded, principally with palmetto, water oak and pine, often heavily draped with the long, gray Spanish moss. Along much of its lower course the shores are fringed with mangroves. Fine orange and grape fruit groves border either bank at frequent intervals. From Fort Thompson to Lake Hicopotchee the river channel has been dredged and canalized. For many miles out of Fort Thompson the canal runs through a prairie country, with few or no trees to be seen except occasionally a clump of cabbage palmettoes, locally known as "cabbage islands." The prairie merges grad-

In Camp at Lake Hicopochee. (Photo by O. E. Baynard.)

ually into the Everglades with its great vistas of waving saw grass and rushes. Now and then a "cypress" may be seen not far from the canal. A last straight stretch known as the Four Mile Canal brings us to Lake Hicopochee. This is a small, roundish shaped lake about five miles in diameter connected with Lake Okeechobee by the Three Mile Canal. About Lake Okeechobee the timber is principally cypress on the east side, with great tangles of the impentrable custard apples on the south and southwesterly side.

On the first day out but a short distance was made, owing to motor trouble, but on the 5th, running from daylight till well on into the evening, we reached Lake Hicopochee. On the following day we explored the marshes and prairies about the lake, and in the late afternoon ran through the canal to Lake Okeechobee, tying up for the night under the "Flat-topped Cypress," a landmark well known to all travelers of this region, serving as it does to guide their craft to the canal. The 7th was stormy, so we did not venture out onto the lake, but on the 8th, the weather clearing, we ran to Rita, a little settlement at the beginning point of the South Canal, which is to lead to Miami. The 9th, 10th and 11th were spent searching for rookeries about the southerly and easterly portion of the lake. At Kramer's Island in South Bay we had the misfortune to suffer a serious breakdown in the form of a cracked piston, which halted further progress. As we were planning to to make the balance of the four-week trip in a canoe, we had the further misfortune of Baynard being taken down with a severe attack of chills and fever. After he had taken 120 grains of quinine and apparently getting worse, and being 140 miles from a doctor, we decided it better to cut short our stay, and an opportunity offering, on the morning of the 12th, we had the disabled Egret and owner towed back to Fort Myers, reaching there on the morning of the 13th.

Taken as this list was in the early part of March, it of course contains many northern birds still lingering here in their winter haunts. A number of the early returning migrants from points still farther south were drifting into this

region too. Several resident species that a traveler not more than a decade ago would have found perhaps in comparative abundance are to-day missing, some of them forever: the Ivory-billed Woodpecker, the Parrakeet, the Roseate Spoonbill and the Limpkin. The Egrets, both the large and the little Snowy, the Swallow-tailed and Everglade Kites and the Sandhill Crane will follow too before many years. The drainage of the Everglades is also playing its part in the bird-life of this region. The water-birds, unable to accommodate themselves to the changing conditions, are seeking new haunts, and with their passing is coming a rapid influx of the small land-birds, such as the Florida Cardinal, Mockingbird, Florida Yellowthroat, White-eyed Towhee, Florida Wren, Ground Dove and Florida Blue Jay.

1. *Podilymbus podiceps.* Pied-billed Grebe. Common both along the river and on the lakes. A flock of about 40 was seen on Lake Hicopochee March 6th.

2. *Gavia immer.* Loon. One bird was seen on Lake Okeechobee March 8th.

3. *Larus argentatus.* Herring Gull. Quite common on the river from Fort Myers to the Gulf, and on Lake Okeechobee as well.

4. *Larus atricilla.* Laughing Gull. Abundant on the lower river. Noted occasionally on the lakes.

5. *Sterna maxima.* Royal Tern. A few were seen about the river mouth March 2d.

6. *Anhinga anhinga.* Water Turkey. Common and usually observed many times each day. It is often seen on some limb or stump at the water's edge, with wings wide spread, enjoying a sun bath.

7. *Phalacrocorax auritus floridanus.* Florida Cormorant. Noted occasionally on the lower river. At Lake Okeechobee these birds are quite abundant and nesting at this season. The fishermen, however, are rapidly decreasing their numbers, using them, wherever there is a rookery handy, to bait their hooks.

8. *Pelecanus erythrorhynchos.* White Pelican. Four birds were seen flying high overhead on Pine Island March 2d and presumably the same four over Sanibel in the afternoon.

9. *Pelecanus occidentalis.* Brown Pelican. Very common on the lower river and about the docks at Fort Myers.

10. *Anas fulvigula fulvigula.* Florida Duck. Four birds were seen at Lake Hicopochee March 6th.

Young Audubon's Caracara in his Palmetto Home below the Big Cypress, Lee County.
(photo by O. E. Baynard.)

Audubon's Caracara at the age of seven days. (Photo by O. E. Baynard.)

11. *Marila affinis.* Lesser Scaup. Common along the river and in sheltered bays on the lakes. They are hunted quite persistently in power boats. However, they seem to know where they are safe, for about the docks at Fort Myers they are almost as tame as barnyard ducks.

12. *Guara alba.* White Ibis. Not observed until we reached the Everglades, where we found them in great abundance. Flocks ranging from two or three hundred to several thousands were seen on several occasions. Breeding had not yet begun.

13. *Mycteria americana.* Wood Ibis. Small groups were observed feeding along the river several times. At Lake Okeechobee many thousands of these birds gather at this season to breed in rookeries in the cypresses. Nesting begins early and many of the young are hatched by March 1st.

14. *Botaurus lentiginosus.* American Bittern. One bird was flushed in a marsh near Lake Hicopochee March 6th.

15. *Ardea herodias wardi.* Ward's Heron. Observed daily. A few were found breeding at Lake Okeechobee, the young having already hatched.

16. *Herodias egretta.* Egret. No longer common in this region. Two small flocks were seen in the Everglades.

17. *Egretta candidissima candidissima.* Snowy Egret. Not more than a dozen birds were seen. These were occasional individuals feeding along the river or canals.

18. *Hydranassa tricolor ruficollis.* Louisiana Heron. Commonly and regularly distributed throughout this region.

19. *Florida cærulea.* Little Blue Heron. About equally abundant with the preceding species.

20. *Butorides virescens virescens.* Green Heron. Observed frequently along the river, and several times in the Everglades.

21. *Nyctanassa violacea.* Yellow-crowned Night Heron. Noted but once, at Lake Hicopochee March 6th.

22. *Grus mexicana.* Sandhill Crane. Still fairly common in the Everglade region. On the evening of March 5th as we were approaching Lake Hicopochee, flocks of from four or five individuals to twenty or more were seen coming in from their feeding grounds at frequent intervals.

23. *Rallus elegans.* King Rail. Heard several times in the marshes.

24. *Ionornis martinicus.* Purple Gallinule. Common throughout this region wherever the rushes and lily pads offer suitable haunts.

25. *Gallinula galeata.* Florida Gallinule. Observed about equally as often as the preceding species and in like situations.

26. *Fulica americana.* American Coot. Many flocks were met along the river and on the lakes.

27. *Gallinago delicata.* Wilson's Snipe. One bird was flushed on the marshy shore of Lake Hicopochee March 6th.

28. *Oxyechus vociferus.* Killdeer. A few were noted at various points along the river and in the Everglades.

29. *Colinus virginianus floridanus.* Florida Bob-white. On the prairies near Lake Hicopochee we found several covies. They were very tame, quite refusing to flush and running just a few steps ahead.

30. *Zenaidura macroura carolinensis.* Mourning Dove. A common resident observed at various points.

31. *Chamaepelia passerina terrestris.* Ground Dove. A few were seen along the river and canals.

32. *Cathartes aura septentrionalis.* Turkey Vulture. Abundant everywhere. Great numbers of this and the following species gather at the fishing camps on Okeechobee to feast upon the odorous refuse.

33. *Catharista urubu.* Black Vulture. About equally abundant with the preceding species. We stopped to inspect a "buzzard roost" on an island in the river a few miles above Fort Myers. Quite a number of the birds were sitting about in the palmettoes and the roost showed evidence of considerable usage.

34. *Elanoides forficatus.* Swallow-tailed Kite. A few were seen in the Everglades, but they are no longer to be found commonly.

35. *Elanus leucurus.* White-tailed Kite. Observed only once. A bird flew over the canal as we were approaching Lake Hicopochee on the evening of the 5th.

36. *Rostrhamus socialbilis.* Everglade Kite. A few were seen in the vicinity of Lake Hicopochee, but like the Swallow-tails they are no longer so common as formerly.

37. *Circus hudsonius.* Marsh Hawk. One bird was seen near Lake Hicopochee March 6th.

38. *Accipiter velox.* Sharp-shinned Hawk. Sharp-shins were observed twice a few miles above Fort Myers.

39. *Buteo borealis borealis.* Red-tailed Hawk. One record, at Lake Okeechobee, March 9th.

40. *Buteo lineatus alleni.* Florida Red-shouldered Hawk. Abundant. The characteristic hawk of this region. Nesting was beginning and the birds were very noisy.

41. *Buteo platypterus.* Broad-winged Hawk. One flew over our boat a few miles above Fort Myers on the 4th.

42. *Haliaetus leucocephalus leucocephalus.* Bald Eagle. Fairly common along the lower river and the islands in the Gulf. Several nests were seen. A few pair are resident on Lake Okeechobee.

The Pine Island Eaglet on the Edge of the Nest, six weeks old.
(Photo by O. E. Baynard.)

The Pine Island Eaglet on a Limb beside the Nest. (Photo by O. E. Baynard.)

43. *Falco sparverius paulus.* Little Sparrow Hawk. Observed regularly. Likely to be found wherever there are a few trees to offer nesting sites.

44. *Polyborus cheriway.* Audubon's Caracara. While not common, the birds may be met almost anywhere in this region. One or two were usually to be found in company with the Vultures at the fishing camps. A pair were making noisy attacks on the Black Vultures at the roost mentioned above. A careful search through the palmettoes, the usual site, failed to reveal a nest. We were probably a little too early for them here.

45. *Pandion haliætus carolinensis.* Osprey. An occasional bird was seen along the river. At Lake Okeechobee they are quite common, and at this season nesting is under way.

46. *Strix varia alleni.* Florida Barred Owl. Rather common. A Barred Owl serenade was a regular feature of each evening.

47. *Otus asio floridanus.* Florida Screech Owl. Heard occasionally at night along the river.

48. *Spcotyto cunicularia floridana.* Florida Burrowing Owl. One bird was seen on Sanibel Island, the first record for Sanibel according to Baynard.

49. *Ceryle alcyon.* Belted Kingfisher. A very common bird along the river.

50. *Phlœotomus pileatus pileatus.* Pileated Woodpecker. Several were seen between Fort Myers and LaBelle.

51. *Centurus carolinus.* Red-bellied Woodpecker. Observed two or three times along the river.

52. *Antrostomus carolinensis.* Chuck-will's-widow. The only one heard was early on the morning of the 13th as we were nearing Fort Myers.

53. *Myiarchus crinitus.* Crested Flycatcher. Several were heard in the custard apple groves at Lake Okeechobee.

54. *Sayornis phœbe.* Phœbe. Rather common along the river.

55. *Cyanocitta cristata florincola.* Florida Blue Jay. Frequently seen along the river and at several points in the Everglades.

56. *Corvus brachyrhynchos paseuus.* Florida Crow. Four or five were seen at LaBelle on the 5th.

57. *Corvus ossifragus.* Fish Crow. Abundant along the lower river, especially about Fort Myers.

58. *Agelaius phœniceus floridanus.* Florida Red-wing. One of the most abundant birds met. Every favorable locality in the Everglades was well populated with them.

59. *Sturnella magna argutula.* Southern Meadowlark. Rather common on the prairies near Lake Hicopochee.

60. *Quiscalus quiscula aglaeus.* Florida Grackle. A number of these birds were preparing to nest in a pine grove in Fort Myers.

61. *Megaquiscalus major major.* Boat-tailed Grackle. Even more abundant than the Red-wings. Great companies were assembled at prospective nesting sites in the Everglades.

62. *Poecetes gramineus gramineus.* Vesper Sparrow. Four birds were seen at LaBelle on the 5th.

63. *Passerculus sandwichensis savanna.* Savanna Sparrow. The commonest sparrow of the Everglades at this season according to our observations.

64. *Ammodramus savannarum floridanus.* Florida Grasshopper Sparrow. On the prairies near Lake Hicopochee they were quite common.

65. *Passerherbulus nelsoni nelsoni.* Nelson's Sparrow. Several were seen at Lake Hicopochee March 5th and one specimen obtained.

66. *Spizella passerina passerina.* Chipping Sparrow. Observed at Rita March 9th.

67. *Melospiza georgiana.* Swamp Sparrow. Noted at several points in the Everglades.

68. *Pipilo erythrophthalmus alleni.* White-eyed Towhee. Observed at Rita on March 9th.

69. *Cardinalis cardinalis floridanus.* Florida Cardinal. Very abundant throughout this region, being surprisingly plentiful in the Everglades.

70. *Piranga rubra rubra.* Summer Tanager. One bird was seen at Rita on March 9th.

71. *Progne subis subis.* Purple Martin. Quite common at Fort Myers, where they were preparing to nest in bird boxes about the docks. Also noted at the railroad bridge a few miles above Fort Myers.

72. *Hirundo erythrogastra.* Barn Swallow. Large flocks were observed circling over the marshes at Lake Okeechobee.

73. *Riparia riparia.* Bank Swallow Several flocks were seen along the river and canals.

74. *Lanius ludovicianus ludovicianus.* Loggerhead Shrike. A common resident.

75. *Vireo griseus griseus.* White-eyed Vireo. Noted at several points about Lake Okeechobee and also at our camp on Lake Hicopochee.

76. *Protonotaria citrea.* Prothonotary Warbler. One bird was seen on the river bank March 5th.

77. *Vermivora peregrina.* Tennessee Warbler. Four or five of

Florida Cormorant Rookery—Lake Okeechobee. (Photo by O. E. Baynard.)

these warblers were feeding in the custard apple trees about our camp on Kramer's Island.

78. *Compsothlypis americana americana.* Parula Warbler. Several Parulas were feeding in company with the Tennessees above noted.

79. *Dendroica æstiva æstiva.* Yellow Warbler. One bird was seen near the canal March 5.

80. *Dendroica coronata.* Myrtle Warbler. A common warbler throughout this region at this season.

81. *Dendroica vigorsi.* Pine Warbler. Observed at Rita on March 9th.

82. *Dendroica palmarum palmarum.* Palm Warbler. The most abundant of the warblers seen. At Fort Myers they were particularly common.

83. *Dendroica discolor.* Prairie Warbler. Several were singing in the thickets on Pine Island March 2d, which is the only place we found them.

84. *Geothlypis trichas ignota.* Florida Yellowthroat. Common in the Everglades.

85. *Mimus polyglottos polyglottos.* Mockingbird. Noted regularly at all points. The Mockingbird and the Florida Cardinal are the most universally distributed of the smaller birds.

86. *Dumetella carolinensis.* Catbird. Several were observed about our camp at Kramer's Island.

87. *Toxostoma rufum.* Brown Thrasher. Observed at Rita on March 9th.

88. *Thryothorus ludovicianus miamensis.* Florida Wren. Quite common in the Everglades. The birds were singing freely.

89. *Troglodytes ædon ædon.* House Wren. Several were seen on March 6th in thickets near our camp at Lake Hicopochee.

90. *Nannus hiemalis hiemalis.* Winter Wren. A bird was seen at the edge of a "cypress" near the canal March 5th.

91. *Polioptila cærulea cærulea.* Blue-gray Gnatcatcher. Gnatcatchers were observed frequently in the trees bordering the river.

92. *Planesticus migratorius migratorius.* Robin. Hardly common, but single birds were seen regularly.

93. *Sialia sialis sialis.* Bluebird. Noted two or three times along the river.

SOME ADDITIONS TO A LIST OF THE WINTER BIRDS OF SOUTHEASTERN MICHIGAN.

Part III.

B. H. SWALES.

In the Wilson Bulletin No. 42, March, 1903, p. 20-24, and No. 48, Sept. 1904, p. 82-83, I published a list of seventy-one species that I have been able to record as occurring in Southeastern Michigan during the winter months of December, January and February. Since 1904 I am now able to add eighteen species, making a total of eighty-nine species found during the winter months. It is needless to state that I do not deem these 89 species as being all winter birds, but it is interesting merely as demonstrating to what extent the regular winter fauna can be added to by stray migrants or summer residents that, for some reason or other, remain during all or a portion of the winter.

No. 72. *Larus philadelphia.*

Bonaparte's Gulls were found to linger decidedly late in 1911. In the early part of December small straggling flocks could be seen almost daily working down the river, pausing to feed on the open river, here and there. I failed to detect them after December 15, when a flock of fifteen passed down, but others probably remained later as the river remained practically free from ice until December 28.

No. 73. *Phalacrocorax auritus auritus.*

The latter part of December, 1907, and early January, 1908, were rather mild, the temperature being as high as 53° on December 27. The river was entirely free from ice and the ground was devoid of snow. On January 8, 1908, I saw a Double-crested Cormorant swimming on the river directly in front of my place on Grosse Isle. I was able to approach within fair range before it saw me; it rose heavily, with labored flapping, and flew down towards Lake Erie.

No. 74. *Branta canadensis canadensis.*

Canada Geese frequently remain all or during that portion of the winter when the lake remains either open or with little

ice. During the winter of 1905-1906 a flock of about ninety birds remained throughout the winter on the west end of Lake Erie near the mouth of the Detroit River. Residents of Grosse Isle and the adjoining mainland endeavored to procure some of this flock, but report that they were very wild and wary. About one hundred geese spent the winter of 1907-1908 in the vicinity of Celeron Island. This was an open winter until January 18, 1908, with scarcely any ice. On December 13, 1908, I saw a flock of ten geese swing in and alight on the bar at the north end of Stony Island, where flocks of ducks were feeding.

No. 75. *Olor columbianus.*

During the winter of 1905-1906 several Swan remained throughout the winter on the western end of Lake Erie. The winter was an open one, with scarcely any ice. At the St. Clair Flats, a resident, Fred Bryant, told me that five swan had remained in the North Channel side of the Flats, and were still there January 29, 1906.

No. 76. *Rallus elegans.*

As hitherto recorded (Wilson Bull. No. 64, 1908, 153), Mr. Taverner and I examined a King Rail that was secured around February 6, 1907, and came in to Eppinger's shop. The bird was in very poor condition. J. C. Wood was informed by Mr. John Krauss that he caught three King Rails near his hotel early in February, 1909. (Auk, 1910, 36.) There are a number of records of this bird wintering in the extensive marsh at Point Pelee, Ont.

No. 77. *Ardea herodias herodias.*

One secured in February, 1903, near Lake St. Clair, Macomb County, and came in to Mr. L. J. Eppinger, Detroit. The gunner had been out after rabbits, the ground was covered with snow, and the day so cold that the bird was completely frozen before the hunter reached his home. The winter of 1902-1903 was the most severe one in Michigan in a long term of years, and how this heron managed to eke out an existence on the frozen marshes is an unknown problem. Of course it was extremely emaciated when taken.

No. 78. *Philohela minor.*

A late Woodcock was shot December 3, 1907, and examined at the shop of Mr. Arthur Borck, Detroit.

No. 79. *Oxyechus vociferus.*

James B. Purdy noticed a Killdeer on December 25, 1907, on his farm near Plymouth, Wayne County. This bird remained in the vicinity throughout January, 1908, after which he failed to notice it.

No. 80. *Alveo pratincola.*

A female Barn Owl was secured December 10, 1908, by a gunner out Gratiot Avenue, near Detroit, and brought in to Mr. Borck. This specimen is now in the collection of P. A. Taverner.

No. 81. *Sayornis phœbe.*

One record. On February 13, 1909, I noticed a Phœbe perched in a small apple tree on the Sterling place, Grosse Isle. The bird was calling and acted as contented as if the day was a month later. January and February to date had been about normal winter months and followed by severe weather.

No. 82. *Dolichonyx oryzivorus.*

Mr. J. Claire Wood secured a male Bobolink on December 6, 1908, on the marsh bordering Lake St. Clair above the city of Detroit. (Private claims 120 and 321.) This bird was emaciated and healed gunshot wounds on the breast and wing were found. On December 20, 1908, he secured another male, and this was in fine condition, and showed no trace of any injury. (Wood, Auk, 1909, 193.)

No. 83. *Hesperiphona vespertina vespertina.*

I examined a male secured on December 30, 1905, near Detroit by Mr. A. J. Long. I heard of no other Evening Grosbeaks during the winter.

No. 84. *Calcarius lapponicus lapponicus.*

Mr. J. Claire Wood records (Auk, 1910, 41) a flock of eight Lapland Longspurs on December 13, 1908, and two flocks of seven, and eight on December 15, the latter in River Rouge Valley. He writes me that he saw a few in N. E.

Wayne County on December 19-20, 1911, and February 27, 1912.

No. 85. *Poœcetes gramineus gramineus.*

I secured a female on Grosse Isle on December 29, 1908, that is the only winter record that I am aware of. This bird was fat and in good condition. The ground was bare of snow. Mr. P. A. Taverner was with me at the time.

No. 86. *Zonotrichia albicollis.*

While working through a pasture heavily grown up with thorn trees (Cratægus) on December 19, 1911, I found a White-throated sparrow feeding. I was able to watch it for some time at close range. December, 1911, was an unusually mild month and I have no doubt but that others could have been found.

No. 87. *Pipilo erythrophthalmus erythrophthalmus.*

Two records. Mr. Jas. B. Purdy saw a female on January 29, 1905, near Plymouth, Wayne County. On December 19, 1911, I saw a male on Grosse Isle on the same piece of ground where I observed the White-throated Sparrow. The Towhee was actively engaged in scratching among the dead leaves and occasionally gave his alarm notes.

No. 88. *Thryothorus ludovicianus ludovicianus.*

One singing from my ice house on Grosse Isle, January 16, 1911. I noticed another Carolina Wren on December 5, 1911, that was busily engaged in exploring an old chicken house. This bird remained in the vicinity for several days, and I heard him calling or singing every day.

No. 89. *Hylocichla guttata pallasi.*

One recorded only. I found a Hermit Thrush on December 8, 1905, in the woods near the head of Belle Isle, Detroit River. The bird was apparently in good condition, to judge from the way it was tripping over the dead leaves. The previous week (Nov. 29-Dec. 4) was a severe one, the temperature being as low as 17° on November 30, with about an inch of snow on the ground on December 2.

[Continued from March number, page 33.]

WHY BIRDS ARE SO NAMED.

BY KATIE M. ROADS.

NAMED IN HONOR OF PERSONS.

Aiken's Screech Owl. Brewster. "Named in honor of C. E. Aiken, of Colorado Springs, Colo. The first specimen collected by C. E. Aiken, May 29, 1872, in El Paso County, Colorado."

Abert's Towhee. Baird. "Described June, 1852, and named in honor of Lt. Abert, from whom the first specimen was obtained in New Mexico."

Anna's Hummingbird. Less. "Named by M. Lesson in honor of Mme. Anna, Duchess de Rivoli."

Allen's Hummingbird. Henshaw. "Named in honor of Mr. Chas. A. Allen, who first discovered it at Nicasio, Cal., and furnished a series of fine specimens to Henshaw."

Anthony's Green Heron. Mearus. "Named in honor of Mr. A. W. Anthony, who contributed so much to the avifauna of the west, collected by Dr. Mearus in the Colorado desert, April 12, 1894."

Audubon's Warbler. Townsend. Audubon says, "Was discovered by Mr. Townsend, who has done me the honor of naming it after me."

Audubon's Woodpecker. Trudeau. Audubon says, "Presented to me by its discoverer on account of the honor which he conferred upon me," i.e. by naming it in his honor.

Bachman's Sparrow. Cabanis. "Named in honor of Dr. Bachman, who furnished the first account to Mr. Audubon. Discovered on the Edisto, near Harper's Ferry, S. C., April 1832."

Bachman's Warbler. Aud. "This specie was discovered a few miles from Charleston, S. C., July, 1833, by Dr. Bachman, for whom it was named."

Baird's Bunting. Aud. "Named in honor of his young

friend, Spencer F. Baird, of Carlisle, Pa. First discovered on July 26, 1843, by John G. Bell."

Bailey's Mountain Chickadee. Grinnell. "I take pleasure in naming this well-marked new chickadee for Mrs. Florence Bailey, whose accurate accounts form an important component of the ornithology of the west."

Baird's Hawk. Hoy. "Named in honor of Spencer F. Baird of the Smithsonian Institution."

Barlow's Chickadee. Grinnell. "Named for Chester Barlow, an ornithologist of California."

Bartram's Sandpiper, or Bartramian Sandpiper. Bon. "I have honored it with the name of my very worthy friend, near whose botanical gardens I first found it."

Batchelder's Woodpecker. Batch. "Common, given in honor of the collector and describer. First found at St. Vegas, Hot Springs, N. Mex., December 18, 1882."

Bell's Sparrow. Cassin. "Named in honor of John G. Bell, who first discovered it in San Diego, Cal."

Bell's Vireo. Aud. "Named in honor of John G. Bell, his companion, who first discovered it near Black Snake Hills, May 4, 1843."

Bendire's Thrasher. Coues. "Named in honor of the discoverer, Lt. Bendire."

Berlandier's Wren. Couch. "This species has been named by its discoverer, Lieut. Couch, for Dr. Berlandier, late of Metamoras, Mexico."

Bewick's Wren. Aud. "Named in honor of the reviver of engraving on wood in this country. Found October 19, 1821, in Louisiana, five miles from St. Francisville."

Bicknell's Thrush. Ridg. "Named in honor of Mr. Eugene P. Bicknell, who first discovered it in the Catskill Mountains."

Bischoff's Song Sparrow. Baird. "Named in honor of Ferd Bischoff, who first discovered it at Kadiak Island, 1869."

Blandig's Finch. Gambel. "Was discovered in Rocky Mountains by Dr. Gambel and named in honor of the scientist, Dr. Blandig."

Bonaparte's Flycatcher. Aud. "Discovered by Audubon and dedicated to Prince Charles Bonaparte."

Brewer's Blackbird. (Wagl) Caban. "Collected by R. Kennicott at Pembina, Minn., September 20, 1857, and named in honor of Thomas M. Brewer."

Brewer's Sparrow. Cassin. "Named in honor of Dr. Thomas M. Brewer, of Boston."

Brewster's Linnet. Ridg. "Named in honor of Mr. Wm. Brewster, of Cambridge, who first discovered it at Waltham, Mass., November, 1870."

Brewster's Warbler. "Named in honor of Mr. William Brewster, who first discovered it at Newtonville, Mass., May 18, 1870."

Bryant's Cactus Wren. Anthony. "In honor of Mr. W. E. Bryant, an ornithologist of Lower California. Discovered by A. U. Anthony at St. Telmo, L. Cal., April 30, 1893."

Bullock's Oriole. Swains. "Named in honor of the discoverer."

Cabot's Wren. Cabot. "It has received its common name from the discoverer and describer."

Cahoon's Wren. Brewst. "Named in honor of J. C. Cahoon, who first discovered it at Sonora, Mexico, May 13, 1887."

Cairns's Warbler. Coues. "Named in honor of John Cairns, who first discovered and described it (John S. Cairns)."

Cassin's Purple Finch. Baird. "Collected by Dr. Kennedy, January 22, 1854, at Pueblo Creek, N. Mexico, and named in honor of John Cassin."

Cassin's Sparrow. Woodhouse. "Discovered by Dr. Woodhouse at San Antonio, April 25, 1851, and named in honor of John Cassin, ornithologist."

Clarke's Grebe. Lowe. "Named in honor of J. H. Clark, who first discovered it in Chihuahua, Mexico."

Clarke's Nutcracker. Wils. "Discovered on the Lewis and Clarke expedition and named in honor of Gen. Wm. Clarke."

Cooper's Hawk. Bonp. "He has imposed upon it the name of a scientific friend, Wm. Cooper, of New York."

Cooper's Henhawk. Cassin. "Named in honor of Dr. Cooper, who obtained the first specimen in 1855 in Santa Clara Valley, California."

Cooper's Sandpiper. Baird. "Named in honor of Wm. Cooper, who first discovered it at Raynor, South Long Island, May 24, 1833."

Cooper's Tanager. Ridg. "Dedicated to Dr. J. G. Cooper, so well known for his research in the Natural History of Western North America."

Cory's Shearwater. Cory. "It has received its English name from the discoverer and describer of the species."

Cory's Least Bittern. Cory. Cory says, "When I described this bird in 1886, I gave it no English name. The committee of the A. O. U. have since honored me by giving it my name."

Costa's Hummingbird. "Named by M. Bouriur in honor of M. le Margins Costa de Beauregard."

Couch's Kingbird. Baird. "Named in honor of D. N. Couch, who first discovered it in New Lew, Mexico."

Coue's Flycatcher. Caban. "Named in honor of Dr. Elliot Coues, who first discovered it at Fort Whipple, Arizona, August 24, 1864."

Cuvier's Kinglet. Aud. "In honor of the scientist in General Zoölogy, Baron Cuvier."

Douglas' Crested Quail. Bonp. "Found by Douglas in Upper California."

Douglas' Snipe. Swains. Nuttall says, "The only known specimen was killed on the banks of the Columbia in Oregon by Mr. Douglas, whose name it bears."

Everman's Ptarmigan. Elliot. "Named in honor of Prof. B. W. Everman, who first brought this ptarmigan to the notice of naturalists."

Feilner's Owl. Licht. "Named in honor of John Feilner, who discovered it at Fort Cook, North California, August 23, 1860."

Fisher's Petrel. Ridgw. "Named in honor of Mr. Fisher, who first discivered it on Kadiak Island, June 11, 1882."

Floresi's Hummingbird. "Named in honor of Mr. Floresi, who presented a specimen to the late Mr. George Loddigs."

Forbush's Sparrow. Brewst. "In honor of E. H. Forbush."

Forster's Tern. Nuttall. "In honor of the eminent naturalist and voyager, Forster, who first pointed out it was a distinct species."

Frazer's Green Heron. Brewst. "In honor of M. Abbott Frazer, of Watertown, Mass."

Frazer's Oystercatcher. Brewst. "In honor of the collector, M. Abbott Frazer."

Gairdner's Woodpecker. Aud. "First discovered near Fort Garland, Colo., May 26, 1873, by H. W. Henshaw. Named in honor of Dr. Gairdner."

Gambel's Quail. Nuttall. "Named in honor of the discoverer, Dr. William Gambel, who found it first in New Mexico."

Gambel's White-crowned Sparrow. Nuttall. "Specimens obtained by Mr. Townsend on the Columbia River and named for the ornithologist, William Gambel.

Giraud's Oriole. Cassin. "Named in honor of Jacob P. Giraud, Jr., of New York, an ornithologist."

Grace's Warbler. Coues. "Named for his sister."

Grinnell's Water-Thrush. Grinnell. "The common name given to it is that of the discoverer and describer."

Gruber's Hawk. Ridgw. "Dedicated to Mr. Gruber, the collector and donor of the specimen."

Hammond's Flycatcher. Kantus. "This species is named after Dr. W. A. Hammond of the United States Army."

Harlan's Hawk. Aud. "Named in honor of his excellent friend, Dr. Richard Harlan, of Philadelphia."

Harris' Hawk. Aud. "Named in honor of his friend, Edward Harris."

Harris' Woodpecker. Aud. "Named in honor of his friend, Edward Harris. Discovered by Townsend on the Columbia River, September 7, 1834."

Havell's Tern. Aud. "Named in honor of Robert Havell, an ornithological engraver."

Heerman's Gull. Cassin. "Named in honor of Mr. Heerman, who first made it known that it was a North American bird in 1852."

Heerman's Merganser. Cassin. "Dedicated to Dr. A. L. Heerman, who first discovered it at San Diego, Cal."

Heerman's Song Sparrow. Baird. "Named in honor of the late Dr. Heerman, who first obtained specimens of this bird in the Tejon Valley."

Henshaw's Flycatcher. Bonp. "Named in honor of Dr. Henshaw, who discovered the first in the U. S. at Chircahua Mountains, Arizona, August 24, 1874."

Henslow's Sparrow. Aud. "Named in honor of Prof. Henslow, of Cambridge."

Hoover's Warbler. Macgregor. "Named in honor of his friend, Theodore J. Hoover, who collected the types and kindly placed his material in my hands for examination."

Hepburn's Rosy Finch. Baird. "Named in honor of Mr. Hepburn, an eminent English naturalist."

Hoyt's Horned Lark. Bishop. "First discovered by L. B. Bisher, Cando, N. D., April 22, 1895, and named in honor of William H. Hoyt, Stanford, Conn.

Hutchins' Goose. Sw. and Rich. "This species was named in honor of Mr. Hutchins, of whom Pamant and Lartam derived most of their information respecting the birds of Hudson Bay."

Hutton's Flycatcher. Cassin. "Named in honor of Mr. William Hutton, a naturalist, of San Diego, Cal."

Kennicott's Owl. Elliott. "Taken by Bischoff at Sitka and named for Mr. Kennicott, the explorer of the north in search of science."

Kennicott's Warbler. Blas. "Collected by Charles Pease, August 16, 1866, at St. Michaels, Alaska. Named in honor of Mr. Kennicott, the martyr naturalist of the Russo-American Telegraph Expedition."

Kirtland's Owl. Hoy. The first was captured October,

1821. "I have named this species as a slight token of respect to that zealous naturalist. Prof. Jared P. Kirtland, of Cleveland, Ohio, who first discovered it at Cleveland in 1851."

Kirtland's Warbler. Baird. "Named in honor of Dr. J. P. Kirtland, of Cleveland, Ohio, who first discovered it at Cleveland in 1851."

Krider's Hawk. Hoopes. "Named in honor of the discoverer, Mr. Krider, of Philadelphia."

Kumlien's Gull. "Named in honor of Kumlien, who found the bird breeding in numbers on Cumberland Gulf."

Lawrence's Goldfinch. Cassin. "Discovered by J. G. Bell in California and named in honor of Mr. Geo. M. Lawrence, a naturalist of New York."

Lawrence's Oriole. Cory. "Dedicated to Mr. Geo. M. Lawrence, of New York."

Lawrence's Warbler. Herrick. "First described by Herrick in 1874 and named in honor of Mr. Geo. M. Lawrence."

Leconte's Sparrow. Aud. "First discovered by J. G. Bell on May 24, 1843, and named in honor of his young friend, Dr. Leconte."

Leconte's Thrasher. (Lawr). Coues. "Named in honor of the discoverer, Dr. Leconte, and first described in 1851."

Lewis's Woodpecker. (Wils.) Bonp. "Discovered by an exploring party under the command of Captain Lewis and Lieut. Clark and named in honor of Captain Lewis."

Lincoln's Finch. Aud. "Named in honor of the discoverer and his young companion, Thomas Lincoln."

Lloyd's Bush-tit. Sennett. "Named in honor of Wm. Lloyd."

Lucy's Warbler. Cooper. "Discovered by J. G. Cooper at Ft. Mohave, Arizona, March 25, 1861."

Mac Gillivray's Seaside Sparrow. Aud. "He bestowed upon the species the name of his friend, William Mac Gillivray."

Mahlherbe's Flicker. (Mahl.) Baird. "The common name given in honor of the original describer of the species."

Marian's Marsh Wren. Scott. "Named in honor of his wife, Marian J. Scott."

McCown's Longspur. Lawrence. "Named in honor of the discoverer, Captain McCown, who obtained it in Texas."

McFarlane's Gyrfalcon. (Forst.) Ridgw. "Named in honor of R. McFarlane, who first discovered it at Fort Anderson, May 24, 1864."

McFarlane's Screech Owl. Brewst. "Named at the request of the collector, Chas. E. Bendire, in honor of Robert McFarlane, a professional friend of Robert Kennicott. Collected October 22, 1881, at Fort Walla Walla, Wash."

Maynard's Cuckoo. Ridgw. "Dedicated to Mr. C. J. Maynard, the Florida ornithologist."

Maxmilian's Nutcracker. Max. "First discovered and described by that eminent naturalist, Maxmilian, Prince of Wied."

McGregor's House Finch. Anthony. "Named in honor of his friend, Mr. R. C. McGregor."

McLeod's Sparrow. Brewster. "Named in honor of R. R. McLeod, of Hutton, Maine."

Mearns' Partridge. Nelson. "It is named for Dr. Edgar A. Mearns, U. S. A., in recognition of the great amount of zoölogical work he has done in the region which it inhabits."

Mearns' Thrasher. Anthony. "Named in honor of Dr. E. A. Mearns. Collected at San Quintin, Lower California, January 2, 1894."

Merril's Song Sparrow. Brewster. "Named in honor of Dr. J. C. Merrill, U. S. A., who first discovered it at Fort Sherman, Idaho, March 6, 1895."

Morelet's Seedeater. Pucheran. "Named in honor of the discoverer, Morelet."

Nelson's Gull. Henshaw. "Named in honor of Nelson, who first found it at St. Michael, June 20, 1877."

Nelson's Ptarmigan. Stejneger. "Named in honor of E. W. Nelson, who obtained the first specimen on the Aleutian Islands."

Nelson's Sharp-tailed Sparrow. Allen. "First obtained in the Calumet marsh by E. W. Nelson."

Nuttall's Whippoorwill or Poor-will. Aud. "Named in honor of his friend and scientist, Thomas Nuttall. First discovered September 8, 1843, by J. G. Bell."

Nuttall's Woodpecker. Gambell. "Shot by Gambell near the Pueblo de los Angelos, Upper California, December 10, 1843, and named in honor of Nuttall."

Pallas' Dipper. Bonp. "Named in honor of Pallas, who is supposed to have found it in the Crimea."

Palmer's Thrasher. Ridgw. "We have pleasure in dedicating this curious form to Dr. Edward Palmer, who has added very much to our knowledge of the national history of the region, eastern Arizona, where the bird is found."

Parkman's Wren. Aud. "Named in honor of his friend, Dr. George Parkman, of Boston."

Peale's Petrel. Peale. "The common name has been given in honor to the discoverer and the first to describe the species."

Richardson's Grouse. (Dougl). Baird. "Named in honor of Dr. Richardson, the distiguished traveler."

Richardson's Merlin. Ridgw. "Dedicated to the author, who first recognized its distinctness from the Pigeon Hawk."

Ridgway's Junco. Mearns. "Named in honor of Robert Ridgway, of Washington, D. C. Discovered by C. Druxler on May 28, 1858, at Fort Bridger, Utah."

Ridgway's Noddy. Anthony. "Named in honor of Mr. R. Ridgway, whose notes first called my attention to this undescribed form."

Rivoli's Hummingbird. "Lesson named it in honor of M. Massena, Prince of Essling, and Duke of *Rivoli*."

Rodgers' Fulmar. Cassin. "Dedicated to Commodore John Rodgers of the United States Navy, and through whose encouragement and assistance the success of the zoölogical expedition was due."

Ross' Gull. MacGil. "Named in honor of the Arctic explorer, Sir James Clark Ross, who killed the first specimen at Alagreak, Melville Pen, June, 1823."

Ross' Snow Goose. (Cassin.) Ridgw. "Specimens first obtained by Robert Kennicott and Bernard R. Ross of the Hudson Bay Co., and presented to the Smithsonian Institution and named in honor of Ross."

Sabine's Gull. Sabine. "The common name given in honor of the discoverer."

Salvin's Hummingbird. Brewst. "Dedicated to Osbert Salvin, Esq.

Salvin's Oriole. Cassin. "Dedicated to Osbert Salvin, an ornithologist of London."

Samuels' Sparrow. Baird. "Named in honor of the collector, E. Samuels, who first found it in Pulatim, Sonoma County, California."

Say's Pewee. Bonp. "Dedicated to his friend, Thomas Say."

Scott's Oriole. Couch. "Named for Major General Winfield Scott."

Scott's Rail. Sennett. "Named in honor of the collector, W. E. D. Scott, who first found it at Tarpon Springs, Fla., December 27, 1886."

Scott's Seaside Sparrow. "Named in honor of the discoverer, Mr. W. E. D. Scott, who found the first specimens at Tarpon Springs, Fla., in 1888."

Selby's Flycatcher. "Named in honor of Mr. Selby, the distinguished ornithologist."

Semichrast's Wren. Lawr. "Named in honor of Prof. F. Semichrast, who furnished the first specimens to the Smithsonian Institution."

Sennett's Nighthawk. Coues. "Named in honor of Geo. B. Sennett, who first collected it at Whorton County, Texas, May 27, 1887."

Sennett's Warbler. Coues. "This species was added to the fauna by Mr. Geo. B. Sennett in his tour of Texas in 1877."

Sharpe's Seedeater. Laur. "Named in honor of his friend, Mr. R. B. Sharpe, who recognized it as being distinct from Morelet's Seedeater."

Shufeldt's Junco. Coale. "Named in honor of Robert W. Shufeldt, U. S. A., who first discovered it at Fort Wingate, N. M., October 13, 1885."

Smith's Longspur. "Named in honor of Dr. Gideon B. Smith, of Baltimore."

Sprague's Missouri Titlark. Aud. "Named in honor of Mr. Isaac Sprague, who first discovered it near Fort Union, Upper Missouri, on June 9, 1843."

Steller's Duck. (Pallas.) Brandt. "Named in honor of the discoverer, who first found it at Kamschatka."

Steller's Jay. Gmel. Audubon says, "Discovered by Steller, whose name it bears."

Swainson's Warbler. Aud. "Dedicated to his ornithological friend, Swainson. First discovered in Charleston, S. C., 1832, by John Bachman."

Temmick's Guillemot. (Temm.) Coues. "First described by the distinguished ornithologist whose name it bears, from a Japanese specimen."

Tolmie's Warbler. Townsend. "In honor of W. F. Tolmie, an officer of the Hudson Bay Co."

Townsend's Bunting. Bonp. "Named in honor of Mr. J. K. Townsend, who first discovered it at New Gorden, Chester County, Penn., May 11, 1833."

Townsend's Ptarmigan. Elliott. "The sub-species named in honor of C. H. Townsend, who has brought many specimens of Ptarmigans from various islands in the Aleutian chains."

Townsend's Solitaire. "The first specimen shot by Capt. Brotchie at Fort George, Astoria, and given to Mr. Townsend and by him to Audubon."

Townsend's Sparrow. (Gm.) Ridgw. "Named in honor of Mr. Townsend.

Townsend's Warbler. Nuttall. "Named in honor of the discoverer, Dr. Townsend, who first found it on the banks of the Columbia, October, 28, 1835."

Traill's Flycatcher. Aud. "Dedicated to his friend, Dr. Traill, of Liverpool."

Trudeau's Tern. Aud. "Named for J. Trudeau, of Louisiana, who first discovered it at Great Egg Harbour, N. J."

Turner's Ptarmigan. Turner. "The common name given in honor of the discoverer, Mr. L. M. Turner, who first found it at Atka Island, west end of the Aleutian chain."

Vigors's Warbler. Aud. "In honor of the naturalist by that name."

Viosca's Pigeon. Brewst. "At Frazar's request I have named this bird for Mr. Viosca, U. S. consul at La Paz, who has been most kind and helpful in furthering the success of Mr. Frazar's expedition."

Virginia's Warbler. Baird. "Was first discovered in New Mexico by Dr. W. U. Anderson, and Professor Baird; dedicated it to the wife of the discoverer."

Wagler's Oriole. Sclater. "First described by Fagler in Isis, 1829. The first obtained in North America, May, 1853, at Coahuila, Mexico, by Lieut. Couch."

Ward's Heron. Ridgw. "Named in honor of the discoverer, Chas. W. Ward, who first found it at Oyster Bay, March, 1881."

Wilson's Phalarope. (Sabine.) Coues. "Named in honor Geo. O. Welch, who first obtained specimens upon which the species is founded, in May and June, 1883."

Wilson's Phalarope. (Sabine.) Coues. "Named in honor of the ornithologist who first discovered it, but did not live to describe it."

Wilson's Plover. Ord. "The specimen upon which the specie is founded was shot the 13th day of May, 1813, on the shore of Cape Island, N. J., by my ever regretted friend, and I honored it with his name."

Wilson's Sandpiper. "Named in honor of the great ornithologist."

Wilson's Snipe. (Temm.) Audubon says, "To Wilson is due the merit of having first showed the difference between this and the common snipe of Europe and it is honorable for the ornithologists of that region of the globe to have dedicated our species to so zealous and successful a student of nature."

Woodhouse's Jay. Baird. "Named in honor of Dr. Woodhouse, who first discovered it on October 11, 1851, at San Francisco Mountains, N. Mex."

Worthington's Marsh Wren. Brewst. "Named in honor of the discoverer, Mr. W. W. Worthington, who first found it at Sapelo Island, Ga., November 17, 1887."

Wright's Flycatcher. (Swains.) Baird. "Named in honor of the discoverer, Mr. C. Wright, of the Mexican Boundary Survey, who obtained the specimens at El Paso in Texas."

Xantus's Hummingbird. Lawr. "Named in honor of Mr. Xantus's, who discovered it.

A STUDY OF THE AVIFAUNA OF THE LAKE ERIE ISLANDS.

BY LYNDS JONES.

THE BIRDS OF PELEE ISLAND.

By referring to the first article of this series of papers it will be noted that this, the largest island of the group studied, was visited August 28 to September 1, 1905; for about two hours on July 28, and again from August 18 to 21, 1908; July 16 to September 7, 1910; and finally the evening of August 21 and the morning of August 22, 1911. This list, therefore, takes account only of the summer resident birds and the beginning of the autumn migrations. It cannot be regarded as more than preliminary even for the summer season. The correctness or incorrectness of the reports which the residents of the island made to us of vast migrations of the birds, particularly the water fowl, during the last of September and well into November need corroboration. There seems to be no resident of the island now who is competent to make the necessary observations.

The writer believes that the list as here presented represents the actual conditions of the bird population during the

period of study, for no pains were spared to make the investigation of the bird life thorough and detailed. It seems unlikely that any species could have escaped the dozen pairs of eyes and the continuous study.

Podilymbus podiceps.—Pied-billed Grebe.

Noted only at the swamp on the north-east end of the island, where it seemed to be breeding—1910.

Larus argentatus.—Herring Gull.

Everywhere and always common, even during the July days. Much time was spent by the birds roosting on the sand spit, usually near the southern end of it, and when we approached this favorite resting place the birds flew beyond rifle range and settled upon the water. The majority of the gulls were in the dark or mottled plumage. They had not, of course, nested anywhere in the region. There was no pound fishing being done anywhere about the island, and therefore the gulls did not fish in the vicinity.

Larus philadelphia.—Bonaparte's Gull.

The first, an immature bird, was noted on August 11, and nearly every day thereafter during the period of study in 1910. The largest number seen at any one time was four on August 15, 1910, two of which were in nearly full fall plumage. None were recorded on any other trip to this island.

Sterna caspia.—Caspian Tern.

The only records are three September 1, and one each on September 3 and 6, 1910. These individuals lingered about the point for some time, but finally passed on to the southward in the regular line of migration.

Sterna hirundo.—Common Tern.

Present in large numbers on all visits and at all times. They did not nest on this island, but rested and roosted on the sand spit by the thousand, both night and day. There seemed to be fewer of them at night than during the day. Many were in the first plumage, and there were numerous instances of young being fed by the parents. As far as could be determined the fish used for food were small and slender. As noted, there were extensive nestings on Middle Island, only two miles to the south, and on Big and Little Chicken and North Harbor. On excursions around the island, these terns were seen roosting on every available sandy point. Ten thousand individuals would be a conservative estimate of the numbers hereabouts.

Hydrochelidon nigra surinamensis.—Black Tern.

Present in considerable numbers on all visits, increasingly so during the 1910 studies. Full plumaged birds predominated dur-

ing the July and early August studies, with scattering young plumaged birds, the most of which were still being fed. As the weeks passed the mottled birds increased in numbers until there were almost none in the full summer dress. It was clear that there was no breeding colony on Pelee Island during the summer of 1910, whatever may have been true at any other time.. Compared with the preceding species, the numbers were small at the time of the beginning of the 1910 studies, July 16, but by the first of September the two species were about equal in numbers. The birds of this species were somewhat less wary than of the Common, so that the succession of perching birds on the sand spit was Herring Gulls on the extreme point of the spit, then the hosts of Common Terns, and finally, ranging well toward the first vegetation on the broader base of the spit, the particolored Black Terns. Photographs of the birds as they were leaving the spit, taken from the spit itself, show practically no birds but the Black Terns, because they were always in the foreground.

Anas platyrhynchos.—Mallard.

Three were found in the small swamp at the base of Fishing Point on August 6, 1910. Of course there must be great numbers during the migrations.

Anas rubripes.—Black Duck.

Seen only during the 1910 studies. There were four in the Fishing Point swamp on August 5, and two on each of the three succeeding days. The other records are August 17, one; 24 and 25, two; 28, four; September 3, one; and 6, four. As noted elsewhere, a few individuals of this species were usually found in the vicinity of the Chicken islands. These individuals may have wandered over to Pelee. When they were startled they invariably flew toward the Chicken islands.

Mareca americana.—Baldpate.

A small flock was noted flying westward across the point on August 5, 1910, none others noted at any time.

Querquedula discors.—Blue-winged Teal.

A pair with young was noted in the swamp of Fishing Point for a few days early in August, 1910. The nesting must have been at this swamp.

Aix sponsa.—Wood Duck.

There were three individuals in the swamp during the first week in August, 1910. Whether they had nested there could not be determined.

Botaurus lentiginosus.—Bittern.

Beginning on August 5, 1910, when a thorough study of the Fishing Point swamp was made, one or two of these birds were

seen nearly every day. It seemed likely that there had been at least one nesting here, but that could not be determined certainly.

Ixobrychus exilis.—Least Bittern.

There were three at the Fishing Point swamp all summer, 1910. No nest was found there, but other evidence of breeding seemed conclusive.

Ardea herodias herodias.—Great Blue Heron.

From one to four were seen perched on the sand of the point each morning, and were occasionally seen elsewhere or flying about. If there had been a nesting on the island we did not find evidence of it.

Florida carrulea.—Little Blue Heron.

On August 27, 1910, a lone individual was discovered perched on a dead tree in the midst of the swamp. It was approached closely enough to make clear the bluish tips of the wings, and the greenish legs, but the man with the gun missed it. To those who must have the specimen in order to fully establish the record it must remain a hypothetical occurrence, but to those who saw the bird there seems no reasonable doubt. The attempt to kill the bird seemed to be enough to frighten it away, for it was not seen again.

Butorides virescens virescens.—Green Heron.

Two were occasionally seen about the edge of the swamp, or flying about over the water or the island, 1910. A nest, probably of this species, was found in the trees bordering the swamp on the north.

Rallus elegans.—King Rail.

Several could be seen feeding along the margin of the marsh at any time of day, if one approached cautiously. A number of nests which must have been built by this species were found in the swamp. The birds were so wary that the least disturbance sent them skurrying into the dense vegetation bordering the water of the swamp.

Rallus virginianus.—Virginia Rail.

Nests belonging to this and the next species were numerous in the swamp, and numbers of the birds were seen feeding or were heard calling on every visit to the swamp. This little thirty acre swamp seemed to be a nesting mecca for these birds.

Porzana carolina.—Sora.

There seemed to be more individuals of this species than of the last, but the less wary disposition of this species might easily account for the apparent difference. One of our pleasant 1910 pastimes was to wade into the swamp and half a dozen of us surround a small bushy island upon which there were known to be several of the small rails. The birds would cling to it with a

tenacity truly remarkable, and that made their escape seem impossible. But they more frequently did make their escape between the feet of some tormentor than any other way. They seemed to be unwilling to trust themselves to flight and complete exposure. One stood about as much chance of catching a bird as of catching a field mouse or a tiger beetle, in the dense vegetation.

Gallinula galeata.—Florida Gallinule.

So numerous in this little Fishing Point swamp that it seemed to be full of them. The young birds outnumbered the old ones five to one. There were some young less than half grown. Nests were everywhere in the more central parts of the swamp where vegetation made it possible to locate them. One would hardly dare venture a guess of the numbers of this species in this swamp, but on one occasion we actually counted over fifty.

Fulica americana.—Coot.

Six individuals were seen on the swamp on the north-eastern point of the island on August 29, 1910. The conditions there were more favorable for their nesting than at the Fishing Point swamp.

Philohela minor.—Woodcock.

The largest number recorded at any one time was 5 on August 14, 1910, but one or more could be found at any time by beating through the woods and brush in the vicinity of the swamp, especially in the depressions between the ridges. Nestings must have occurred here.

Gallinago delicata.—Wilson's Snipe.

One was flushed from the Fishing Point swamp on August 7, and likely the same individual on the 8th. On the Ohio shore this would be a remarkably early date for this species.

Macrorhamphus griscus griseus.—Dowitcher.

There were three records, all for 1910, and all for the sand spit. The first one was on August 10, one bird which was secured, two on August 24, and one on September 3. These individuals were not particularly shy.

Tringa canutus.—Knot.

Two lingered on the point, September 5, 1910, until one of them was secured. The birds were in the fall plumage.

Pisobia maculata.—Pectoral Sandpiper.

A group of seven feeding in the swamp on August 24, 1910, were the first seen. There were three on the 27th, one on the 28th and 29th, about two hundred on September 2, and twenty on the 3d. All were in the heavier mottled plumage. They were feeding at the western end of the swamp, where the water had dried away and the mud lay exposed.

Pisobia bairdi.—Baird's Sandpiper.

These birds gave us a good deal of anxiety for the first few days after their first appearance, but the capture of several and the remains of others which some bird of prey, probably a Sharp-shinned Hawk, regularly left, furnished certain means of identification until the characteristic markings were learned. The first seen was a flock of twelve on August 24, 1910, and from that date until September 7, the date on which we left the island, from two to a dozen were found on the beach usually somewhere on the sand spit. After the first few days they were not at all wary, but permitted one to approach them within a few feet. Some bird of prey took daily toll from their numbers, sometimes as many as six individuals being represented by the remains. The marauder rarely ate more than the breast muscles, leaving a good part of the plumage intact. The killing was always done either at night or so early in the morning that we were unable to witness it.

Pisobia minutilla.—Least Sandpiper.

The first company of six of these birds were recorded on August 5 and 6, 1910. The next was a company of ten on the 11th, one of twelve on the 12th, and then nearly every day from one to ten until the 27th, which was the last record. This species was nearly always associated with the Semipalmated, and it soon became easy to distinguish between them. These birds were rather more wary than the last species, but they fed in much the same places and manner. Their call notes were different and their manner of flight also different.

Pelidna alpina sakhalina.—Red-backed Sandpiper.

There were only three records, all in 1910. The first was of three birds on August 15, one on the 16th, and one on the 21st. These were on the sand spit feeding with the other shore birds. All in the post nuptial plumage.

Ereunetes pusillus.—Semipalmated Sandpiper.

The first noted in 1910 were two feeding in the Fishing Point swamp on July 24th, then a company of twenty-five at the same place on August 8th, and thereafter during our stay there were numbers either in the swamp or on the beach, more frequently on the sand spit than elsewhere. They mixed with the other shore birds, and were only slightly more wary than were the Baird's Sandpipers. One with a broken leg remained around for several days. These birds suffered only slightly from birds of prey.

Calidris leucophæa.—Sanderling.

The first noted were on the 24th of July, 1910, the next four on August 2, six on the 5th, three on the 11th, two on the 25th, nineteen on the 29th, sixteen on the 3d of Sepember, and four on the

5th. They were pretty definitely confined to the region of the sand spit, and usually kept somewhat apart from all other birds. They were feeding upon insects which had been cast up by the waves, including mayflies. They were rather more wary than is their habit on the Ohio shore.

Limosa hæmastica.—Hudsonian Godwit.

Seven were seen under the most favorable circumstances, both on the sand spit and flying about, on August 24, 1910.

Totanus melanoleucus.—Greater Yellow-legs.

There was one feeding in the swamp on July 24th, 1910, and another in the same place on August 5th. Either we were not in the line of flight southward, or else we were not late enough for the regular southward migration of this sandpiper.

Helodromas solitarius solitarius.—Solitary Sandpiper.

There was one feeding in the swamp on July 24th, 1910, another on August 2,, six on August 6th, four on the 11th, and thereafter until the 5th of September there was one or more there or on the beach nearly every day. As usual, these birds kept by themselves, unless a Yellow-legs or some of the smaller sandpipers happened to wander in to feed in the swamp.

Totanus flavipes.—Yellow-legs.

There was one feeding in the swamp on July 24th, 1910, two on August 2, and nearly every day thereafter from one to five, except on the 27th, when there were thirteen found either there or on the beach. The only regular association was with the Solitary, and that probably only incidentally during the feeding time.

Actitis macularia.—Spotted Sandpiper.

By far the commonest beach-haunting bird, except only the gulls and terns, and always present both on the beach and among the bushes. On August 30 it was noted as only tolerably common, on the 31st only seven were found, and on September 1, 2, 3, 5 and 6 only four, six, three, two and two respectively, none being seen on the 4th and 7th. It does not seem likely that this marked the disappearance of this species from the island, since the Ohio shore records run well into October. There were young birds not yet able to fly as late as the middle of August. These birds fed a good deal along the water's edge, but they could always be flushed from the edge of the bushes also. The young birds were much concealed in the bushes.

Squatarola squatarola.—Black-bellied Plover.

In 1910 there were two with black underparts on the sand spit on August 24, one there on September 1st, and five there on September 6th, two of which did not have the underparts black. They were very wary, not permitting approach within shot gun range, but they did not fly away from the point when flushed.

Oxyechus vociferus.—Killdeer.

Common on all visits to the island, and present there during the entire stay in 1910, of course nesting. There were always some on any stretch of beach, and we also found them on the higher parts of the island inland as well as along the ditches.

Ægialitis semipalmated.—Semipalmated Plover.

The first noted were two on August 5th, eight on the 8th, and thereafter a few were seen on the beach nearly every day in 1910, except from August 17th to 27, when there were none. It was also found on each of the other August trips to the island. These little shore birds kept much apart from the other birds, more often one in a place than in companies or flocks. They fed over the sand generally.

Ægialitis meloda.—Piping Plover.

A company of twelve was feeding on the east beach all day August 12, 1910, and a single bird was seen there on the 22d. If they had nested on the point during the summer of 1910 it must have been before the first party arrived there. Their early departure from Pelee Island accords with their habit on the Ohio shore.

Arenaria interpres morinella.—Ruddy Turnstone.

The first were noted on July 24th, and from then to the end of our stay in 1910, there were always a few somewhere on the beach. The largest number noted on any one day was thirty on September 5, and twenty-six on the following day. There were nineteen on August 16. In my experience these strikingly colored shore birds may be expected on the shores of Lake Erie or the islands at any time after the first week in July. They were noted on every late summer trip to the islands. They usually occur two together, but sometimes bunch up, especially at times of heavy migration, in the fall, more often in the larger groups in the spring. They stay close to the edge of the water when there is any reason for them to feel suspicious, but at other times may feed even to the edge of the line of vegetation on the beach. Late summer and early autumn groups usually contain some highly colored birds with those of duller plumage.

Zenaidura macroura carolinensis.—Mourning Dove.

A common nesting bird, especially in the cedars. It was found on each trip to the island, and in 1910 it was often seen on the sandy point. As the season advanced there was a tendency for the birds to group themselves into companies of ten or a dozen individuals, and to feed together along the water's edge or in the margin of the bushes. None were seen to cross southward, even in the strong southward movements. Inland these birds acted much as on the Ohio side.

Circus hudsonius.—Marsh Hawk.

During the greater part of the 1910 study time there were one or two of these hawks to be seen flying leisurely around at almost any time, but beginning on August 27, when thirteen were seen migrating, there was a decided increase and nearly every day evidences of a southward movement. It is altogether likely that there was at least one breeding pair on the island during this summer, but there must certainly have been an influx from the northward of many individuals as the weather turned colder in the last week of August and the first of September. The only evidence we had that this hawk might sometimes prey upon the young terns was the war-like attitude of the terns when one of them appeared in their vicinity. This attitude might have been a general one toward any hawk-like bird, however.

Accipiter velox.—Sharp-shinned Hawk.

A single individual of this species was seen on August 6th, and from one to three each day thereafter, except August 27, when there were six, and September 2, when there were twenty-two, evidently migrating. It is altogether likely that the depredations made upon the shore birds, in particular Baird's Sandpiper, were by this hawk. We were never able to catch one in the act, but on numerous occasions one was seen to leave the vicinity of freshly killed birds. One or two individuals could be started out of the cedars in the morning and in the evening.

Astur atricapillus atricapillus.—Goshawk.

An individual visited the Finishing Point swamp on August 24, 1910. We were clearly too early to witness any decided migration. Residents of the island mentioned flights of hawks which they were sure were of this species.

Buteo borealis borealis.—Red-tailed Hawk.

Two were found in the vicinity of large woods inland, but none ever made a visit to the vicinity of the point. These two birds acted like nesting birds.

Buteo lineatus lineatus.—Red-shouldered Hawk.

Individuals were occasionally seen flying high over the woods in the vicinity of the swamp near camp.

Haliæetus leucocephalus leucocephalus.—Bald Eagle.

Two nests were found, one about a mile north of South Bay, and one in the vicinity of Saw Mill Point. As near as we could estimate there were probably eight individuals on the island. Occasionally one or two would pay a visit to the point, but they always kept well up in the air. The residents of the island shot them with impunity, yet the big birds seemed to be able to maintain their numbers from year to year.

Falco sparverius sparverius.—Sparrow Hawk.

Contrary to our expectations, we did not find this little hawk at all common at any time. The largest number seen at any time was four on September 5, 1910. It seemed to prefer the cedars, and could occasionally be flushed from there. One sometimes ventured down to near the end of the sand spit, but soon returned and disappeared in the cedars.

Pandion haliatus carolinensis.—Osprey.

One was flying over Saw Mill Point August 8, 1910, another in the vicinity of camp August 22, and another flying over the sand spit September 5, 1910. There was no evidence of a nest anywhere on the island.

Asio flammeus.—Short-eared Owl.

A single bird visited the cedars in the vicinity of camp on August 11, 12, 23 and 27. Each time it was started from the ground or near it from one of the depressions between the ridges.

Otus asio asio.—Screech Owl.

Found on each visit, which included at least one night. It was present all summer, 1910, and could be heard quavering any night. It was difficult to find among the dense cedar growths, but we did success in finding individuals occasionally. It is likely that this owl is well distributed over the island in the woods.

Bubo virginianus virginianus.—Great Horned Owl.

One was discovered in the dense woods north of the point, and west of the swamp on August 25, 1910. There were plenty of suitable nesting places for this big owl.

Coccyzus americanus americanus.—Yellow-billed Cuckoo.

Common in the vicinity of the swamp during the entire study in 1910. Nests were not found in any numbers, but the birds were giving their characteristic calls all day long. One nest was discovered about fifty feet from the ground on the limb of an elm, near the swamp. Individuals occasionally wandered well toward the point among the cedars, but they clearly preferred the deciduous trees near the swamp.

Coccyzus erythrophthalmus.—Black-billed Cuckoo.

Noted less than twenty times during the 1910 study. The difference in the calls of the two cuckoos had been questioned, so particular attention was given to this study. In every instance where the bird could be both seen and heard the phrased call of this species was given, which distinguishes it from the preceding. No nests were found, but there was clear evidence that these cuckoos do nest on Pelee Island in limited numbers. There was no migratory movement of either of the cuckoos detected. One would suppose that their migrations would begin with the first chilly weather, but such did not appear to be the case.

Ceryle alcyon alcyon.—Belted Kingfisher.

Present during the whole summer study, 1910. One could always be found either in the swamp or on the beach near it. Individuals were seen at different points when we circumnavigated the island. Undoubtedly a nesting bird.

Dryobates villosus villosus.—Hairy Woodpecker.

Only one or two individuals were found, and they in the woods west of the Fishing Point swamp in the deciduous trees.

Dryobates pubescens medianus.—Downy Woodpecker.

Not any more numerous than the last species; and found in the same situations and in the button bushes bordering the swamp vegetation.

Of course these two woodpeckers must nest on the island, but we were not prepared for so few numbers. They were much less confiding than in regions where they are represented by greater numbers.

Melanerpes erythrocephalus.—Red-headed Woodpecker.

Like the last two species, this one was represented by few individuals which were clearly nesting. These few individuals were found in the open woods north of the swamp. Occasionally one wandered down into the cedar belt. Beginning on August 25th and continuing the remainder of our stay, in 1910, the Red-heads became common, and were clearly migrating, some of them during the day. This influx was sudden, following a chilly night. There seemed to be none in the brown-headed state.

Centurus carolinus.—Red-bellied Woodpecker.

One individual was found in the woods north of the swamp on August 23d. It was high up in the tallest trees.

Colaptes auratus luteus.—Northern Flicker.

Common on all visits and during the entire 1910 study. Nesting places were numerous wherever there were trees on the island. There was no definite migration noted. Birds would sometimes fly toward the south end of the sand spit, but none were seen to continue their flight in that direction. They fed in the tops of the cedars, and seemed to be eating the berries, and when the wild grapes began to turn they could be found among the grape vines, evidently feeding on the fruit.

Antrostomus vociferus vociferus.—Whip-poor-will.

The only ones found were on August 22 and 27, 1910, in the thick woods with underbrush south of the swamp.

Chordeiles virginianus virginianus.—Nighthawk.

The first one was seen July 30, 1910, and the next, three, at Saw Mill Point, August 8th. Single individuals were seen nearly every day until August 19, when there was an evident migration,

which continued nearly every day to the culmination on September 3, when 250 were counted in migration. During the evenings from August 19 until September 3, numbers could be seen flying over Mosquito Bay, sometimes swinging down even to Fishing Point and over the sand spit. The first migration followed the first chilly weather.

Chætura pelagica.—Chimney Swift.

Common on every visit to the island, and during the entire 1910 study. Migrations began on August 12th and continued every day to the end of our stay. There was never any marked increase in numbers, but a steady southward movement.

Archilochus colubris.—Ruby-throated Hummingbird.

Only occasionally seen among the marsh vegetation until August 23, after which there were decidedly more during our stay in 1910. At this time, as well as on the former visits to this island, these birds were found feeding about the jewel weed, where they were the most numerous, and where they were continually, on bright days, playing antics. Single individuals migrated just over the surface of the water, either passing directly down the sand spit toward Middle Island, or squaring away for Middle Bass. They seemed to prefer a head wind of some strength, or a quartering head wind which rolled up considerable waves. In migrating they flew just over the water and dipped down between the waves. I did see one bird strike out toward Middle Bass island high in the air, and did not see him settle down any.

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The Ornithological Magazines

CASSINIA.—A Bird Annual. Proceedings of the Delaware Valley Ornithological Club of Philadelphia. 1911. Issued February, 1912.

This annual always brings to us the best that the Delaware Valley Ornithological Club has done in the twelvemonth, accompanied by a bibliography of the region which the Club covers, taken from other publications. This number opens with a portrait of Constantine S. Rafinesque and a paper on his life; then follow six papers dealing with local matters, and matters of general interest, a short paper on Alexander Lawson, who was Alexander Wilson's engraver, then the regular "Report of the Spring Migration of 1911, compiled by Witmer Stone." "Cassinia" is always warmly received. L. J.

BIRD-LORE.—The July-August number contains a colored frontispiece of Abert's and California Towhee, and the winter and summer phases of the Canon Towhee, by Louis Agassiz Fuertes. In line with the avowed office of this magazine, the first article is "A List of Trees, Shrubs, Vines, and Herbaceous Plants Native to New England, Bearing Fruit or Seeds Attractive to birds," by

Frederic H. Kennard. The second article, by Francis Harper, is "Observations in a Laughing Gull Colony," in which the author has given some interesting bits of the life history of the colony studied on Cobb's Island. Four text photographs accompany the article. The remaining three general articles are of the interesting popular sort. There follow the migration records of the three towhees which are figured on the frontispiece, and "The Massachusetts Audubon Society's Bird-Lists." The department of the Audubon Society contains a colored plate of the Yellow-headed Blackbird and portraits of Captain M. B. Davis and Mr. L. F. Dommerich, both recently deceased and both interested in bird protection.

L. J.

THE CONDOR.—The July-August number contains fifteen half-tone plates of unusual interest and excellence, and one map. This magazine holds the record for the excellence of its half-tone figures. In the first article Florence Merriam Bailey discusses the "Birds of the Cottonwood Groves" at Glorieta, in an interesting running account, which makes one want to visit the place. Mr. Robert B. Rockwell, in the second article, accompanies an interesting discussion of some wading birds of the Barr Lake Region, Colorado, with excellent half-tones of nests and eggs and young birds. Mr. Harold C. Bryant shows both in a full text treatment and a map of California "The Present and Future Status of the California Valley Quail." Milton S. Ray writes of "A Journey to the Star Lake Country and other notes from the Tahoe Region," with two text figures. Wells W. Cooke discusses "The Present Status of the Colorado Check-List of Birds," from which it appears that seven of the 395 species included in Schlater's book in 1912 may be open to question, but that fifteen species are to be added to that list, which makes the Colorado list number 403 species.

L. J.

Field Notes

NOTES FROM THE TRI-RESERVOIR REGION IN OHIO.

The year 1911 brought a great number of Shovellers up this way in the spring. On March 22 the first one, a female, was shot at a small pond, and later on 5 (4 males, 1 female) found their way into my collection, shot on April 5th and the 15th, on the Loramie Reservoir. Usually this duck is only seen singly or in pairs in this region as well as in Ohio in general.

On March 20th, 1911, a fine female *Marila collaris* was taken at the Loramie Reservoir and is now in my collection. On March

21st 3 Pelicans (*Pelecanus erythrorhynchos*) were seen at the same ditch, where seen two years ago, and on August 27th, 1911, a fine male subadult was taken at the Grand Reservoir in Mercer Co. and is now in my collection. A female of *Buteo lineatus*, shot September 6, 1911, had in its craw and stomach 6 Katydids, 1 Peromyscus leucopus novebaracensis and a young snake about 25 ctm. long.

The last specimen of *Pisobia maculata* was taken November 1, 1911.

On November 17, 1911, a farmer living four miles west of New Bremen brought in a fine live female juvenile of *Buteo borealis calurus*. This is the second record only for the state and the specimen seems to agree closely with the one in the O. S. U. museum. It is now No. 1018 of my collection. The same date brought in the last *Anas rubripes* from the Loramie Reservoir. Robins, Meadowlarks and Towhees were observed all winter at various times, and as my work took me over my entire parish of 50 miles in the severest weather, with the thermometer as low as 25° below zero, I can say that frozen apples hanging to the trees were the principal food of the Robins, while Meadowlarks found food in the horse dung on the roads, but it remained a mystery what the Towhees lived on. There seemed to be no diminution of Bluebirds and Robins in the spring of 1912. On February 11, 1912, a pair of *Harelda hyemalis* were shot on the Grand Reservoir. Ohio ornithologists may be interested in the fact that a Kirtland's Warbler male, taken May 15, 1909, at Catawba Point, Ohio, was received by me in exchange for one taken in Michigan, through the courtesy of Mr. Norman A. Wood, so that this specimen has come back to the state where it was originally taken.

New Bremen, Ohio. W. F. HENNINGER.

A FEW STARK COUNTY, OHIO, NOTES.

Within the last year several new species have been added to the recorded list for this territory, and several additions to the roll of summer residents have been made. Among the former can be noted the Yellow Palm Warbler, a flock of seven individuals being recorded for October 8, 1911. (Specimens needed.—Ed.)

Twice last fall Holboell's Grebe was found on Meyers' Lake, near here. While observing it on the first occasion, it was amusing to watch the efforts of several boys in a canoe who sought to exhaust this "duck"—as they called it—by constant following it about. But its dives were of such long duration and of such uncertain direction that it was the boys' patience that became exhausted, and soon led to giving up the fruitless effort.

May 5th of this year the Golden-winged Warbler, a single individual, was met with.

None of the above, to the best of my knowledge, have heretofore been recorded here.

November 5, 1911, I met with three Whistling Swans, and have been told of a swan being shot last spring. So far as I have been able to learn, these are the only recent records for swans here, which have now become rare.

The Loon I find to be a fairly regular spring and fall migrant on the lakes hereabout, although it is not common. A few Pied-billed Grebes and Lesser Scaup Ducks are usually found summering, and there are at least two breeding records for the latter species.

An event of last spring's migration worthy of note was the decreased number of Bluebirds here. Several of us have estimated their number at but a third to a half that of the usual number.

June 9 last was spent afield at Congress Lake, near the northern boundary of the county. It is but fourteen miles north of Canton, but its avi-fauna showed some variation. At Canton the Wilson's Thrush or Veery is known only as a migrant, while at Congress Lake it was found a rather common summer resident, and nesting. Again, we bird observers at Canton have with effort never succeeded in listing the Cerulean Warbler, but it was met with at Congress Lake, and I was informed was a regular summer resident there. To Mrs. May S. Danner and Miss Mary King, who have done considerable field work at Congress Lake, belongs the credit of first finding the Veery nesting within the confines of the county, and of being the first to note the Cerulean Warbler within the same territory.

Of passing interest at Congress Lake was the meeting with a Bartramian Sandpiper on the beach consorting with a Spotted Sandpiper. An infrequent place for this Upland Plover.

Edward D. Kimes.

Canton, O., July 20, 1912.

NOTES FROM MOORES HILL, INDIANA.

These notes are from observations made in the spring of 1906 at Moores Hill and the adjacent country. The country is rocky, hilly and well wooded, with numerous small streams. The spring was unusually early and these may be useful for comparison with other years here as well as in other places.

Bluebird. First observed on February 24. Common.

Slate-colored Junco. Common on the campus in winter.

winter.

Red-headed Woodpecker. Permanent. Few.
Cardinal. Permanent. Rare.
Blue Jay. Permanent. Common.
Northern Flicker. Permanent. Few.
Screech Owl. Permanent. Rare.
Downy Woodpecker. Permanent. Rare.
Robin. In the protected places along streams they are found throughout the year. Very plentiful in summer.
Crow. Permanent. Common.
Sparrow Hawk. Permanent. Common.
Tufted Titmouse. Permanent. Very common.
Chickadee. Permanent. Very common.
Quail. Permanent. Very common.
Hairy Woodpecker. Permanent. Rare.
Mourning Dove. First one seen March 3. Common.
Bronzed Grackle. First observed March 29. Very common.
Meadowlark. First observed March 29. Common.
Cedar Waxwing. First observed March 29. Common.
Chipping Sparrow. April 7. Common.
Catbird. April 7. Common in thickets.
Turkey Buzzard. April 7. Common.
Black-billed Cuckoo. April 5. Common.
Migrant Shrike. April 20. Nesting.
Chimney Swift. April 21. Very common. Large droves seen in the evening.
Red-winged Blackbird. April 21. Common around swamps.
Brown Thrasher. April 21. Very common along hedges.
Killdeer. April 21. Frequently seen in moist places.
Vesper Sparrow. April 21. Few.
Song Sparrow. April 21. Few.
Grasshopper Sparrow. April 21. Rare.
Baltimore Oriole. April 25. Few.
Orchard Oriole. April 25. Few.
Scarlet Tanager. April 30. Rare.
Kingbird. April 30. Common.
Warbling Vireo. April 23. Rare.
Tennessee Warbler. April 23. Rare.
American Goldfinch. April 30. Common.
Crested Flycatcher. May 13. Rare.
Indigo Bunting. May 20. Few.
Barn Swallow. May 20. Common.
Nighthawk . A few seen in the evening.
Towhee. Very common. The nests found everywhere in the woods built under a little mound of grass.

On April 20, while on a ramble, I discovered a Migrant Shrike's nest. The nest consisted of coarse grass lined with feathers, and was placed in a tall hedge about seven feet from the ground. When approached she would fly from the nest or perch on the nearby hedge or light on the ground in the distance, never ceasing to watch my every move. When I left the nest she would return immediately. Their favorite food (mice) was impaled all along the fence on the thorns. Though I visited the place frequently I saw only the female bird.

Katie M. Roads.

Election of Members

The following names are proposed for membership in the Wilson Ornithological Club:

FOR ACTIVE MEMBERSHIP.

Edward J. Brown, Division of Birds, U. S. Nat. Mus., Washington, D. C.

George Seth Guion, Napoleonville, Louisiana.

Alexander Walker, Box 436, Armour, South Dakota.

O. E. Baynard, Clearwater, Fla.

FOR ASSOCIATE MEMBERSHIP.

Frances Stillman Davidson, 1392 W. S. Grand Ave., Springfield, Ill.

Publications Reviewed

Observations on the Yellow-billed Tropic-Bird (*Phaethon americanus* Grant) at the Bermuda Islands. By Alfred O. Gross.

Contributions from the Bermuda Biological Station for Research No. 23. With nine plates. From the Auk, Vol. XXIX, No. 1, pp. 49-71.

This paper represents intensive studies of this species during two summers. It is as complete a life history as could be expected, with some interesting additions from the observations of those who live on these isolated islands. The accompanying pictures give a graphic account of the growth of the young and their development of feathers. We welcome it as another addition to the literature on life histories. L. J.

Our Mid-Pacific Bird Reservation. By Henry W. Henshaw,

Chief of Biological Survey. From Yearbook of Department of Agriculture for 1911. Pp. 154-164.

The place is Laysan Island, but the other islands of the reservation are also mentioned. The paper is a short resume of the Nutting expedition, with a comparison of the conditions then and previously. It is so interesting that the reader is gripped with the desire to visit the island in person. L. J.

The Shore Birds of Santa Barbara. By J. Hooper Bowles and Alfred B. Howell. With three photos by Bowles and one by Dawson. Reprinted from The Condor, Vol. XIV, Jan. 1912. Pp. 4-11.

There are here listed twenty-nine species, which is a remarkably large list for any locality of such restricted area. In the whole of Ohio, to make comparisons, there have been but 36 species of Shore Birds recorded. This list also well illustrates the cosmopolitan character of many of the species of this order. While the list is largely concerned with times of occurrence there are some other interesting notes relating to the habits of the birds. L. J.

The Relation of Birds to an Insect Outbreak in Northern California During the Spring and Summer of 1911. By Harold C. Bryant, Fellow in Applied Zoölogy on the Fish and Game Commission Foundation in the University of California. With four photos by the author. Reprinted from The Condor, Vol. XIII, Nov. 1911. Pp. 195-208.

The insect outbreak here referred to was a "remarkable plague of catepillars, followed by a pest of butterflies, that has existed the past spring and summer (1911) in the northern counties of California, especially in Siskyou County." The insect was Eugonia californica, and the birds found feeding upon it were Brewer's Blackbird, Western Meadowlark, Western Kingbird, Blue-fronted Jay, and Say's Phœbe. Of these Brewer's Blackbird was the most efficient check, both on account of the numbers of individuals and because its food consisted of 95% of butterflies. Domestic birds also helped greatly in reducing the pest. We have here a concrete case upon which to base conclusions as to the value of birds to agricultural interests. L. J.

The English Sparrow as a Pest. By Ned Dearborn, Expert Biologist, Biological Survey. Farmers' Bulletin 493, U. S. Department of Agriculture. Issued April 20, 1912.

The discussion covers 24 pages, a considerable of the space being occupied with cuts of traps and a discussion of their uses.

The paper is a practical one and of both interest and value. The author summarizes the paper: "English Sparrows are abundant in most of the towns in the United States and in many suburban districts. They are noisy, filthy, and destructive. They drive native birds from villages and homesteads. Though they are occasionally valuable as destroyers of noxious insects, all things considered, they do far more harm than good. Practicable methods of dealing with them include destruction of nests, shooting, trapping, and poisoning. Of these, trapping is unquestionably the best. English Sparrows are good to eat, and their use as food is recommended because of their nutritive value and as a means of reducing their numbers." L. J.

Some Common Game, Aquatic, and Rapacious Birds in Relation to Man. By W. L. McAtee and F. E. L. Beal, Assistants, Biological Survey. Farmers' Bulletin 497. Department of Agriculture. Issued May 6, 1912.

Besides the interest which this 30-page pamphlet elicits on account of its practical value to the interests of agriculture, there is the unusual interest which attaches to the appearance of figures from the pencil of a new bird artist. In this case none other than the writer's acquaintance and friend, Robert J. Sim. We say "new bird artist," but we remind the reader that Mr. Sim is not an entire stranger to readers of The Wilson Bulletin, for it contains reproductions from his hand. Of the fourteen figures in this pamphlet ten bear the signature of Mr. Sim. We heartily welcome him to the arena. L. J.

The Flight of Birds. By F. W. Headley. With sixteen plates and many text-figures. Witherby & Co., 326 High Holborn, London. 12mo. 163 pages. Price 5s., net.

Mr. Headley is clearly well posted in aëronautics, and it is therefore fitting that he should find the flight of birds an interesting subject. The book is interestingly written and the illustrations are selected to bring out certain points in the discussion. We have seen pictures that seemed to better illustrate the flight of birds, or at least appealed to the eye more strongly. On the whole the book is a valuable contribution to the discussion of bird flight. L. J.

Birds of North and Middle America. By R. Ridgway. (Part V.)

The fifth volume of this monumental work treats of the Families Pteroptochidæ (1 species), Formicariidæ (66 species and sub-

species), Furnariidæ (29 forms), Dendrocolaptidæ (41 forms), Trochilidæ (174 forms), Micropodidæ (25 forms), and Trogonidæ (23 forms), the number of specimens examined during the preparation of this volume being 14,358. The families worked up in this volume include some very difficult species and these have been handled with Mr. Ridgway's well known accuracy and ability, the author's personal trips to Costa Rica being a great aid in his work. The criticisms of Oölogists are disposed of in the preface in a very satisfactory manner. It is altogether absurd to apply the ordinary manner of criticism to this gigantic Birdwork, for in almost every single instance it is simply *above* criticism and deserves nothing but the highest praise that words can bestow.

W. F. H.

Michigan Bird Life. By W. B. Barrows. Spec. Bull. of the Dep. of Zoölogy and Physiology of the Mich. Agri. College.

We welcome this work on the Birds of Michigan as an important and valuable addition to Bird Literature. It is a well illustrated volume of 822 pages, of which unfortunately pages 705 to 737 are missing and the latter part of which is badly jumbled up by the exceptionally bright (?) binders. In the preface due acknowledgements are made to the contributors and the number of species is stated to be 326, and as every record has been carefully scrutinized it is of a far greater value than Cook's former list of 336 species, which was altogether too loosely constructed. The Introduction gives much information about the Topography, Climate, Distribution of Plant Life and Animal Life, Bird Life in Michigan, Changes in Bird Life, the study of birds, the use of keys, migration, etc. Under each species are given the recognition marks, the distribution, the status as a Michigan Bird with the records in chronological order, nidification, economic status, and finally the technical description in smaller print. Altogether Professor Barrows and the Michigan ornithologists can be congratulated upon the splendid work they have done and the splendid book they have produced.

Handbook of Birds of Eastern North America. By Frank M. Chapman. Appleton. $3.50 and $4.00.

This new edition of Mr. Chapman's valuable "Handbook" is greatly improved over the first edition, both in appearance and in workmanship. From the colored map of the life zones of North America, which occupies the front cover and first page of the flyleaf to the last cover page, on which is a six-inch scale with the Metric scale also, there is evidence of painstaking revision work on the part of the author. The enlargement of the Introduction

alone makes it a book in itself. Here one finds not only an introduction to the study of birds but an introduction to the science of Ornithology. The body of the book gives evidence of careful revision both as to nomenclature, which has been brought down to date, and in descriptive matter. The student of birds who wishes to have at hand a work of usable size and of entire reliability, one with which he may be certain to identify any bird which may reasonably be expected to visit the eastern half of North America, will make this the book of first importance for his library — for, as far as a book can, it combines the local list, migration dates, nesting times and distribution with that which goes to make up a "Key." We are surprised that such a book with eight full page colored plates and two double page colored plates, not to mention the other fourteen full page plates and the 136 text figures, could be made for the price asked per copy. It is entirely deserving of the wide sale which it has had and is sure to have in this new form. L. J.

A History of the Birds of Colorado. By William Lutley Schlater, M.A. (Oxon.), M.B.O.U., Hon. M.A.O.U. (Lately Director of the Colorado College Museum). With seventeen plates and a map. Witherby & Co., 326 High Holborn, London. 1912. Published price, $5.

Twenty-four pages of prefatory matter and 576 pages, in which are included a Bibliography of 20 pages, a map of Colorado, a Gazetteer of 10 pages, and an Index of 14 pages. In his "Analysis of the Bird Fauna," the author says: "The number of Colorado birds included in the present work is 395. Of these 225 may be considered regular breeders within the state. I have divided these into three categories, viz.: (A) Those resident throughout the year, 67 in number. (B) The strict migrants which, so far as we know, never winter within the limits of the state, 118 in number. (C) Those birds which breed within the state and in winter are undoubtedly less numerous, so that they may be considered partly migrant and partly resident, 40 in number.

"The non-breeding birds number 167. Of these the largest category by far are the Casual or rare species, which have only been recorded on very few occasions; these number 106. The other two groups, which are not always easy to separate satisfactorily, are the winter residents, numbering 28, and the birds which pass through the state on the spring and fall migrations; these are 33 in number."

The body of the work begins with a key to the orders, then there is a discussion of each order, a key to the families and genera of

the order, a discussion of the family, a technical description of the genus, the vernacular and scientific names of the species, the number of the A. O. U. Checklist, the Colorado records, a description of the species, general distribution of the species and something more about the occurrence in Colorado, and under many of the species a discussion of the habits. The book is avowedly a compilation rather than the result of the author's own field work. It could not be otherwise, because of the author's short residence in Colorado. As a compilation it is remarkably well done. It strikes us as a little odd that a book relating to the birds of one of our own states should come to us from across the water, but it is not less welcome for that. L. J.

The pavilion where the Prothonotary Warbler's nest was found. Riverside, Ill. (Photo by Benj. T. Gault.)

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PROTHONOTARY WARBLERS (PROTONOTARIA CITREA) NESTING AT RIVERSIDE, ILLINOIS.

BY ORPHEUS M. SCHANTZ.

It is a rare pleasure at any time to make a new bird acquaintance, but to find that a supposed occasional spring migration visitor is an "old settler," and that it had nested in your vicinity as far back as 1898, although none of the local published records mentioned it except as a migrant, added greatly to the interest in finding a nest of this beautiful warbler in 1911 at Riverside.

On the morning of July 2nd, the writer and a friend, by the fortunate accident of a leaking canoe, were obliged to land at the home of an acquaintance on the east bank of the Des Plaines river at Riverside.

After getting the necessary "first aid," we were shown around the beautiful grounds with its fine native trees and artistic river frontage. As a final attraction we were invited to inspect a pavilion, the lower story of which served as a boat-house, and to see an unusually located bird's nest.

The pavilion was hung with Chinese lanterns each containing an electric light bulb. In the only lantern having a defective bulb a pair of small birds had built a nest.

The nesting place was so unusual that the owner of the place, although not greatly interested in birds and knowing scarcely any by name, had become very much interested in his tenants.

After the nest was discovered the pavilion was used as before and the birds seemingly were not at all disturbed by the coming and going of visitors.

By standing on a camp chair it was easily possible to look down into the nest and see the little mother on the eggs without disturbing her. Not wishing to frighten the birds a very hurried view was taken, and the writer supposed he had seen only an unusually placed nest of the common Yellow Warbler. You can perhaps imagine his surprise and delight a few minutes later, to see on a nearby tree a pair of Prothonotary Warblers. A second examination of the nest was made to be positive as to the identification. This revealed five beautifuly marked eggs, and a nest entirely different from that of the Yellow Warbler, and typical of the Prothonotary.

The mother bird soon returned to the nest, perching on the edge of the lantern before entering, and the ringing song of the male was then heard from a large willow tree across the river.

Within about a week the five eggs were replaced by five very hungry little warblers, and both parents were kept exceedingly busy carrying worms to their family. For some undiscovered reason all the young birds died before the 16th of July. Whether the public location of the nest finally disturbed the old birds so that they did not feed the little ones enough, it is impossible to say.

The location of the nest was not only remarkable for being in the lantern, but for the fact that only a few hundred feet away was the "Q" railroad bridge with its noisy traffic day and night.

Shortly after the discovery of the identity of the occupants of the nest, it was the writer's privilege to meet the lady who made the first record of the Prothonotary Warbler nesting at Riverside, Mrs. P. K. Solger.

The Prothonotary Warbler's nest in a chinese lantern. Riverside, Ill. (Photo by O. M. Schantz.)

Mrs. Solger's notes accurately described it in 1897, and told of its nesting and rearing a brood in 1898. By an oversight her observations were not included in the bird bulletin published by the Chicago Academy of Sciences a few years ago.[1]

That the birds have nested along the Des Plaines year after year is quite probable, for the conditions are ideal, both as to nesting sites and food supply.

The discovery of the Riverside nest positively establishes the fact of the Prothonotary breeding much farther north in Illinois than previously reported, and sets a new nesting record for Cook County.

The nest and its occupants were visited by a number of bird lovers before its desertion, some of them coming purposely from quite a long distance. Several attempts were made to photograph the parent birds while perching on the edge of the lantern, but no good negatives were produced on account of poor light.

Mr. Ben. T. Gault of Glenn Ellyn, Ill., photographed the pavilion from across the river, and the accompanying picture shows the remarkable nesting site.

[1] The Birds of the Chicago Area, 1907.

FOOD OF HERONS AND IBISES.

BY OSCAR E. BAYNARD.

During the past three years that I have been Warden of the Orange Lake Florida Reservation of the National Association of Audubon Societies I made a special effort to learn the exact kind of food that the Herons and Ibis prefer.

From the following list it will be seen that these birds do a lot more good to the country than any one has given them credit for. The Ibis for their fondness for Crayfish have about cleaned up the thousands of acres of flooded marshes around Orange Lake and the other known fact that Crayfish destroy thousands of the spawn of fish and I have noticed that lakes and ponds that have marshes around them and no

Ibis are nearly always devoid of any great number of fish. However, lack of fish is not always due to lack of Ibis as we have a class of men in Florida who trap lakes and catch any fish that they can sell, and this means almost anything from three inches and up in length. However, lakes that have not been bothered with this class of fishermen and also have not had the Ibis there are poorly stocked with fish.

Orange Lake has been fished with traps continually but with the thousands of Ibis and Herons that use the lake as a reservation have kept the crayfish down to such an extent that there are more fish today in Orange Lake than in many years. There are several thousand acres of marsh around this lake and this has given the fish plenty of places to spawn. As young fish eat millions of mosquitos it stands to reason that with Ibis and Herons we have more fish and less mosquitos, and any bird that does so much good to a State is of very great value and should be protected for that reason alone.

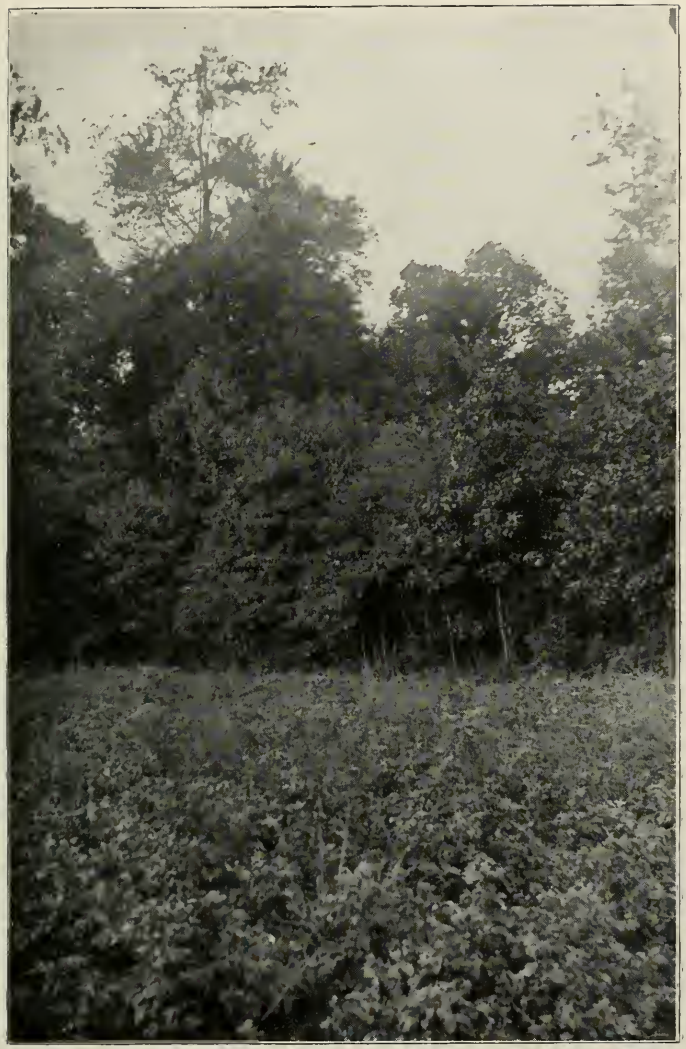
This past Summer we had six days of continuous rain and I noted in one field of about three acres on the edge of the lake that had been planted in squash over two thousand Ibis walking around, turning over the squashes and catching grasshoppers, and from the eagerness with which they hunted they were having good luck. Grasshoppers do millions of dollars damage to the crops of the Florida farmers, and any bird that does this great good is the farmer's best friend.

One Glossy Ibis male that I dissected contained: 14 cut-worms, 12 grasshoppers, 19 small crayfish, part of small moccasin, 1 black bug of some description.

Adult Little Blue Heron had in its stomach: 51 grasshoppers, 2 small frogs, 3 cut-worms, 1 small lizard, remains of three crayfish.

Adult Green Heron had in its stomach: 6 small crayfish, 16 grasshoppers, 2 cut-worms, remains of small frogs.

Adult Lousiana Heron had it it's stomach nothing but grasshoppers too far digested to determine the number but evidently about 200.



North-west end of the roost showing the woods on the north of the roost, and two of the trees where the first arrivals alight. Northfield, Ohio.
(Photo by A. J. Stover.)

Food of 50 young Egrets that was disgorged by them at the nests immediately after being fed, running over a period of four weeks. The total of the 50 meals follows: 297 small frogs, 49 small snakes, mostly the Water Moccasin, 61 young fish, suckers, not edible, 176 crayfish.

Food of fifty meals of young White Ibis: 352 cut-worms, 308 grasshoppers, 602 crayfish, 42 small moccasins.

Food of fifty meals of Young, Little Blue Herons: 1900 grasshoppers, 37 small frogs, 149 cut-worms, 8 lizards, 142 small crayfish.

Food of fifty meals of young Louisiana Herons: 2876 grasshoppers, 8 small frogs, 17 cut-worms, 6 lizards, 67 small crayfish.

Food of fifty meals of young Snowy Egrets: 120 small suckers, 762 grasshoppers, 91 cut-worms, 2 small lizards, 29 small crayfish, 7 small moccasins.

Food of fifty meals of young Water Turkeys. All contained fish, mostly the suckers, pickerel and a few small catfish, none of which are much used for food fish.

Food of fifty young Night Herons: 60 crayfish, 610 small catfish, 31 small pickerel, 79 dragon flies.

A ROBIN'S ROOST.

BY A. J. STOVER.

At Northfield, Ohio, east of the car line is a strip of woods and swamp, in this is a 5 acre piece of land which had once been cleared then neglected, and is now covered with a dense growth of dog-wood, oak, sassafras, wild cherry, chestnut, shumach, etc., about 15 to 20 feet in height. This is protected on the north and east by woods and on the south by a tamarack swamp, the west is open. This low protected place is where the robins roost.

Scattered about this region are numerous bog holes, covered with huckle, alder, and elder berry bushes which afford an abundance of food during late summer and autumn.

Soon after the nesting season small groups of robins may

be found in the roost at night, this year I found them as early as the 14th of June, last year they were somewhat later. The first are apparently family groups and have little to do with each other, each group acting independently of the rest. From now on the flock increases rapidly and by the middle of July several hundred spend the night at the roost, separating during the day, later when the berries ripen they gather in flocks at the feeding ground flying to and from the roost in a body. It is at this time that the flock increases most rapidly usually reaching its height about the middle of August, although this year it did not do so until the middle of September, possibly, because the drought killed most of the berries.

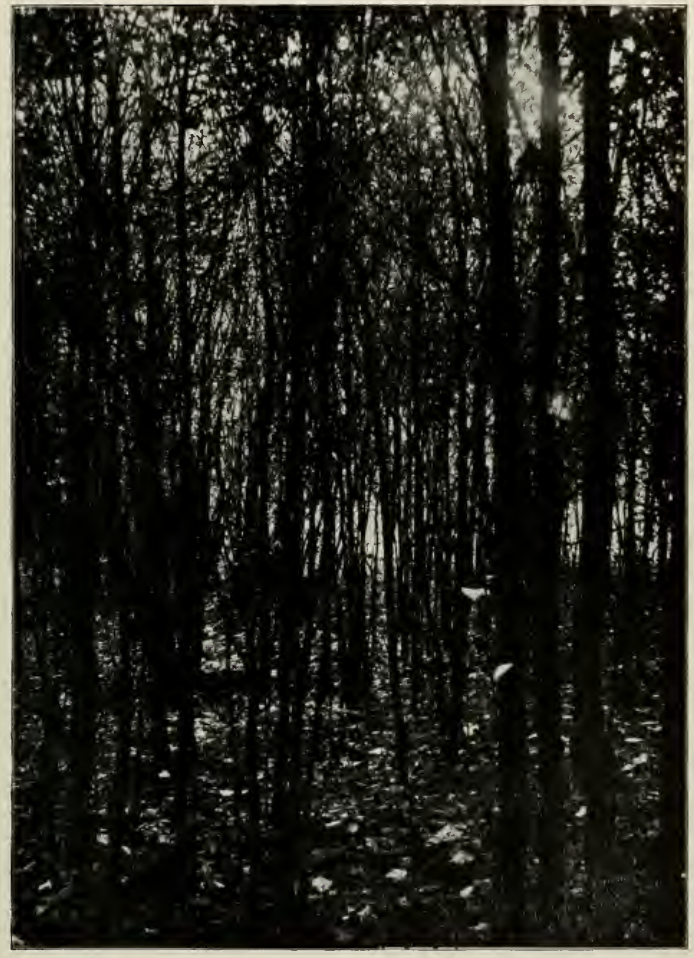
The robins begin coming in about half an hour before sunset, the first arrivals alighting in a number of dead trees about the edge of the roost where they await the others or until it becomes darker when they join an incoming flock and fly to the roost. The old birds are the first to arrive and are cautious, the young come later and take their places heedlessly, frequently alighting within a foot of a person standing in the roosting ground.

As the sun sinks large flocks fly in, I have seen as many as 145 in the air at one time.

August 27, 1909. (5:40 p. m.) 16—4—9—1—4—4—8—(5:45) 1—1—5—18—9—145——124—(5:52) 35—40—8—35—10—37—4—20—40—42—10—30—4— (6:00) 42—8—5—5—1—3—6—(6:05)—11—1—4—1—4—1—17—1—(6:40) 4. Total, 770 from the west.

Sept 20, 1910. (4:48) 8—(4:50) 4—4—(5:04) 5—5—22—21—11—1—2—8—17—1—1—6—(5:15) 11—3—2—1—4—4—23—35—50—31—4—25—14—21—7—4—25—7—3—32—(5:25) 24—30—22—33—1—(5:30) 16—2—2—23—7—2—4—2—1—(5:35) 3—6—5—1—1. Total 607 from the north, 100 from the west, many from the east and south, there are probably over 1000 robins roosting there this year.

I have noticed that they come in earlier on cloudy days than on clear days.



Interior of the Robin roosting place. Northfield, Ohio.
(Photo by A. J. Stover.)

When all are at the roost there is a confused clatter of calls, alarm notes, and scraps of song, finally they quiet down, often during the night they become frightened and fly about the roost calling to one another. Careful as they are many are killed at night especially during the autumn.

During the autumn the robins roam about the country from one feeding ground to another, taking in turn wild cherries, pokeberries,dogwood berries, and wild grapes. The singing of the birds of the year, begun early in September, now reaches its height, the robins may be seen chasing one another through the woods calling loudly, now and then hundreds burst into song, or frightened groups fly through the woods as a hawk flies over. For a time at noon all is quiet, then they begin as before and as sun set approaches fly to roost.

The roost is occupied until the leaves fall, when the robins all leave at once. Last year this occurred on the 13th of October.

A STUDY OF THE AVI-FAUNA OF THE LAKE ERIE ISLANDS.

BY LYNDS JONES.

THE BIRDS OF PELEE ISLAND, ONTARIO, CANADA.

Tyrannus tyrannus.—Kingbird.

Common on all visits to the island, and migrating in small companies during the most of August and into September. There were no indications of such extensive nestings on the island as the numbers found there would indicate to be the case.

Myiarchus crinitus.—Crested Flycatcher.

None were found except in 1910, when there was one at the Fishing Point swamp nearly every day after August 5, when the first was seen. There were three there on August 11, two on the 22d, 29th and 31st, and eight on September 5. Conditions seemed to be favorable for several nesting pairs, but none such were found.

Sayornis phœbe.—Phœbe.

Found in 1910 only. The first was found at the Fishing Point swamp on July 19, and one or two there in the vicinity of an old ice house every time the locality was visited. The building was kept locked, so there was no opportunity to explore its interior for the probable nest.

Nuttallornis borealis.—Olive-sided Flycatcher.

One on August 23, 24, 25, 31, and September 5; three on September 1, and two on September 3, 1910. Two were found on August 18 and 19, 1908. The favorite place for this bird seemed to be a certain dead topped tree which stood on the north edge of the deciduous woods which bordered what we termed "The Sumack Park," south of the Fishing Point swamp. The birds were usually first seen on this tree, but left it for some other perch when we approached too near.

Myiochanes virens.—Wood Pewee.

Common everywhere on all visits to the island, and singing. None were seen in the act of migration.

Empidonax flaviventris.—Yellow-bellied Flycatcher.

In 1910 only. The first, two on August 19, and thereafter some were seen every day to the end of our stay. They were most numerous during the first week in September, when a marked migration seemed to be in progress. They kept well down in the trees and bushes, and were silent most of the time. On warm days following chilly nights a few individuals were heard to sing.

Empidonax virescens.—Acadian Flycatcher.

Since this is not an accredited Ontario bird, except for the specimen which J. H. Fleming believes he took at Ontario, but lost by the taxidermist, the complete record seems warranted. None were found except in 1910, when the following records were made, all for the woods on the Fishing Point, mostly near the swamp. One on August 15 and 18; two on the 19th, 20th, 21st and 23d; three on the 22d; one on the 29th, 30th and 31st; six on September 1; four on the 2d; two on the 3d and 5th, and one on the 6th. The first noted were singing, and occasional songs were heard afterward. Specimens were taken.

Empidonax trailli alnorum.—Alder Flycatcher.

The A. O. U. Check-List notwithstanding, this is the form which inhabits Ohio and Pelee Island. Specimens from central and north-Ohio have been submitted to Mr. H. C. Oberholser, and all pronounced *alnorum*. It was present at the Fishing Point swamp during the most of our stay on the island in 1910, two or three being

noted on each visit. No migratory movement was noted. Besides the peculiar call note a bird occasionally sang. Nests built after the manner of this bird were found, but it was not possible to positively identify them as such.

Empidonax minimus.—Least Flycatcher.

Present on all visits, and common after August 5, 1910. During the most marked migratory movements this little flycatcher swarmed over the beaches where the vegetation was scanty as well as among the brush and trees. Of course it was singing. Actual migration flights southward were not noted. They probably occurred in the darkness.

Cyanocitta cristata cristata.—Blue Jay.

Present on all visits. It was common on the August 18, 19, 1908, visit, but in 1910 only two were found constantly, and they were in the larger trees in the vicinity of the swamp. They were unusually wary.

Corvus brachyrhynchos brachyrhynchos.—Crow.

There were Crows on all visits and during the 1910 stay, but none were seen in migration. The numbers were not accurately determined, but there were certainly upwards of ten present all the time.

Dolichonyx oryzivorus.—Bobolink.

Present on all visits, usually in migration flights. Some evidently nested in the interior of the island, but the great majority were from the north. The first definite migratory movement took place on July 19. Nearly every day thereafter flocks of Bobolinks were passing southward, usually high in the air. There was little or no hesitation about starting out over the water toward Kelleys, and there were no halts on the way, unless it be at Middle Island.

Molothrus ater ater.—Cowbird.

Present in small numbers on our arrival in 1910. The first migration seemed to occur on August 6, in company with the other species of this family, and such migrations in small flocks occurred nearly every day, the individuals becoming fewer, until the 24th to the 27th, when only one was noted each day, and none afterward. An occasional flock rested in the last trees of the point before essaying the flight to Kelleys. It was not always easy to identify these birds among the other blackbirds, unless they gave their whistle call.

Agelaius phœniceus phœniceus.—Red-winged Blackbird.

Common on all visits, and breeding in the marshes in considerable numbers. Many individuals were singing every day. Begin-

ning on August 10, 1910, flocks were seen migrating nearly every day. The predominant plumage was the post juvenal, until late in August and in September, when many males in nearly full plumage and singing were noted. Some of the larger flocks were noted coming from the direction of Point Pelee, but they may have flown southward along the east shore to near Saw Mill Point and then cut across the land to avoid either a long detour around the South Bay shore or the direct flight across the water to Middle or Kelleys Island. None were actually seen in transit from Point Pelee.

Sturnella magna magna.—Meadowlark.

About normally common on the inland parts of the island where the open field conditions were favorable. None were seen on any but the 1910 visit, because none of the others were extended into the interior. None were seen at the point nor any in migration.

Icterus spurius.—Orchard Oriole.

In 1910 only. Common upon our arrival and continuously so until August 26, then rapidly decreasing to one on September 1, and none after. There were certainly greater numbers than we are accustomed to on the Ohio shore, but the conditions for nesting seemed less favorable. It is altogether likely that many of these birds of Pelee Island came from further north.

Icterus galbula.—Baltimore Oriole.

The occurrences almost exactly parallel the last species, but lasted a few days longer. However, it ceased to be common on August 23, and the last one was noted September 5. The most notable thing about this oriole was the manner of migration, suspected but not so capable of demonstration with the last . The flocks for the first two weeks of August seemed to be wholly composed of young birds, or at least birds in the post juvenal plumage, with no other plumages mixed in. With the advancing days there came a scattering few rather dull colored males, increasing in brilliancy until the last flocks contained many brilliantly colored males. I am making no argument but merely stating the facts as we noted them. This same order of migration was marked on Point Pelee in 1911 also.

Quiscalus quiscula aneus.—Bronzed Grackle.

Present in considerable numbers on all visits. The first big flocks came in on August 10, 1910, and migrating flocks passed southward nearly every day afterward. On August 19, 1910, a flock of more than 3000 settled on the ground and in the trees just north of the Fishing Point swamp.

Carpodacus purpureus purpureus.—Purple Finch.

There were two seen and heard on August 13 and 29, and three on the 24th and 30th, 1910. These birds occasionally sang. They were among the cedars about the middle of the point.

Astragalinus tristis tristis.—Goldfinch.

Common on all visits. It was more numerous about the open fields north of the swamp than elsewhere, but was found in some numbers in the woods of the point and along the beach. An individual would occasionally start out over the water in easy bounding flight and be lost to sight. This bird often visits ships during their passage.

Poœcetes gramineus gramineus.—Vesper Sparrow.

A few noted in the fields inland under ordinary conditions.

Spizella passerina passerina.—Chipping Sparrow.

Found only in the fields of the interior of the island. We were too early to catch any migratory movement of this bird.

Ammodramus savannarum australis.—Grasshopper Sparrow.

Found about the houses inland — none on the point. While it was a familiar bird in the immediate vicinity of farm houses it could not be considered a common species on the island as a whole.

Spizella pusilla pusilla.—Field Sparrow.

Two were noted at the point on August 18, 1908, and it was present in the fields inland, and occasionally on the point during the entire 1910 study. It was much less numerous than on the Ohio shore, but numerous enough to be considered tolerably common.

Melospiza melodia melodia.—Song Sparrow.

Common on all visits and singing. A nest containing four eggs was found in a bunch of juniper near the limit of trees on the point on August 3. The young hatched within the next five days. This was the most uniformly distributed bird on the island. It could be found anywhere at any time, even well out on the bare sand spit, where it fed on material thrown up by the waves. Individuals were also seen eating the wild grapes and the cedar berries, and other fruits. It was difficult to identify any definite migratory movement of this bird became it was always abundant everywhere.

Pipilo erythrophthalmus erythrophthalmus.—Towhee.

There were only two individuals found, and they in the vicinity of the Fishing Point swamp. They remained in nearly the same locality, where they could be found at any time. One of them sang frequently.

Cardinalis cardinalis cardinalis.—Cardinal.

One of the characteristic birds of the woods of the point on every visit to the island. The range extended throughout the entire wooded belt of the point. During the days of greatest migration individuals made their way into the last bushes, and sometimes even to the drift brush of the sand spit. None were noticed in actual migration away from the island.

Zamelodia ludoviciana.—Rose-breasted Grosbeak.

Two were found on August 30, and one on September 5, 1910. These were in the woods in the vicinity of the swamp.

Passerina cyanea.—Indigo Bunting.

Common on all visits in the deciduous woods, particularly in the vicinity of the swamp. Some few individuals wandered out into the cedar belt. It was singing during the entire stay in 1910.

Piranga erythromelas.—Scarlet Tanager.

A male in bright plumage and a female were found among the oak trees bordering the Fishing Point swamp on the north on July 19, and one or both were found there on nearly every visit afterward. The male was still in full plumage on August 11.

Progne subis subis.—Purple Martin.

Present on all visits, and during the entire stay in 1910. There was no time when Martins were excessively numerous, but during the three distinct migration periods (see antea 105), they were more than common. The great flights were really swallow flights with Martins mixed in. On several occasions the evening fights were watched from an open field north of the swamp, from which point the most of the migrating birds were noted coming from a north-easterly direction across the Saw Mill Point land area. This is the exact direction of Point Pelee. Such flights were just above the tree tops.

Petrochelidon lunifrons lunifrons.—Cliff Swallow.

The fact that this is the most difficult of the swallows to be certain of when it is mixed in with the others may account for its seeming scarcity. It was noted on all visits, and was present in the migrations during the entire 1910 study period, but only an occasional individual was certainly identified among the host of migrating swallows. Many of those seen were some distance away from the shore of the sand spit, very few being near it. Its manner of migration did not seem to differ from that of the other swallows.

Hirundo erythrogastra.—Barn Swallow.

Present in large numbers on all visits, and usually migrating. The flight was usually easy and deliberate, the majority of the

birds flying within a hundred feet of the water, but occasionally individuals mounted high in the air. The only days on which no migratory movements were noted were when a brisk to strong north wind was blowing. The largest movements occurred against a stiff south wind. Companies often gathered on the bare sand of the spit for a short rest before essaying the passage.

Iridoprocne bicolor.—Tree Swallow.

Except on August 6, 1910, when fifty were counted in the migrations, there were very few individuals of this swallow scattered among the migrating host. This seems strange when we found them in great numbers roosting on the lotus stems and leaves in the Cedar Point marshes later. This species can be so readily distinguished from the others that it is not likely that we overlooked many.

Riparia riparia.—Bank Swallow.

Everything considered this was the most numerous of the swallows on all visits to the island. It was in migration every day after July 20, except only when there was a north wind. The line of migration over and parallel to the sand spit was often half a mile wide. There was almost never a continuous stream of migration, but one bunch of the birds following another, so closely that there was at least one bunch within the range each minute during the heavier migrations. The depth of the migrating stream was seldom over 200 feet, and often much less.

Stelgidopteryx serripennis.—Rough-winged Swallow.

A close second to the last in point of abundance, and found on all visits to the island. Every migration of swallows contained many of this species. These flights of the swallows furnished a splendid opportunity for studying the characteristic actions of each of the species. The more deliberate flight of the Rough-wing as compared with the Bank was always noticeable. The flight also tended to be more straight-away, with fewer abrupt upward turnings. The Rough-wing gives one the feeling of great reserves of energy.

Bombycilla cedrorum.—Cedar Waxwing.

Present on every visit, and common in the cedar belt. These birds were strongly inclined to live in flocks. They fed upon the cedar fruit extensively, but were also seen to eat other fruits, particularly the wild grapes. They were decidedly more wary than the Ohio birds. Nests were not found, but it is wholly likely that extensive nestings occurred on the island.

Lanius ludovicianus migrans.—Migrant Shrike.

Seen only during the 1910 studies, when a pair was found in the border of the fields north of the Fishing Point swamp. The nest was not found.

Vireosylva olivacea.—Red-eyed Vireo.

Present on all visits to the island, and in numbers sufficient to be called common. In 1910 it was pretty closely confined to the deciduous trees until the migrations began, when it spread all over the point, and increased in numbers. The singing was incessant during daylight.

Vireosylva gilva gilva.—Warbling Vireo.

A few pairs seemed to have nested on the island in 1910, and these, with others, were found on the point during the migration waves. There was not much singing among these birds. They affiliated with the warblers, feeding among the cedar trees.

Mniotilta varia.—Black and White Warbler.

Found on all visits to the island. In 1910 the first was noted on August 11, and every day thereafter. It became common on the 17th, and remained common during our stay. There were birds in all stages of plumage, but the young plumages predominated. No places seemed to be especially preferred.

Protonotaria citrea.—Prothonotary Warbler.

We found one individual in full plumage on the north border of the Fishing Point swamp, in the early morning of August 22, 1911. This bird was leisurely feeding on some moth, and permitted us to approach within ten feet. It uttered only the chipping note peculiar to this species.

Vermivora pinus.—Blue-winged Warbler.

There were two seen on August 26, and one on September 1, 1910, in the cedar trees near camp. We had expected to find this warbler in some numbers in the deciduous belt near the swamp, but were disappointed. The three seen were clearly not breeding birds.

Vermivora chrysoptera.—Golden-winged Warbler.

One was recorded on August 27 and 28, 1910, in the cedar trees near camp. There was no evidence that they were not migrating individuals.

Vermivora rubricapilla rubricapilla.—Nashville Warbler.

Found in 1910 only. The first was recorded on August 15, and the birds were in considerable numbers after the 16th. This species was one of those showing marked fluctuations in numbers

during the waves of migration. It was distributed everywhere, but was less numerous at the swamp than among the larger trees and in the cedars.

Vermivora peregrina.—Tennessee Warbler.

It was present in some numbers on September 1st, 1905. The first seen in 1910 was on August 15, a single bird; the next on the 17th, two birds, and from the 18th to the end of our stay it was one of the common birds scattered everywhere among the trees and bushes.

Dendroica tigrina.—Cape May Warbler.

This was one of the pleasant surprises of the 1910 study. On the Ohio side it has always been scarce in spring and absent in fall. We noted the first one on August 19, the next on the 22d, the next on the 25th, it suddenly became common on the 26th, and remained so until September 1, when there was a marked decrease and the last was recorded on the 5th. The unwariness of this warbler made it possible to study the various plumages at close range. Specimens of every phase of plumage were collected. The first birds to appear were in the juvenal plumage, and it was only during the last week of our stay that perfect plumaged birds were seen. We had many about our mess tent during meals.

Dendroica æstiva æstiva.—Yellow Warbler.

Common on all visits, and common in 1910 until September 2. The last was seen on the 2d. Individuals were singing up to the last day. While there were more individuals in the vicinity of the swamp than elsewhere, there were many scattered over the whole of the point, after the migrations began. Occasionally individuals would flit down to the last brush on the point, or even occasionally fly well out upon the sand spit, or even essay the crossing to Middle Island, but most of them came back. Numerous nests were found in the vegetation of the swamp.

Dendroica cærulescens cærulescens.—Black-throated Blue Warbler.

It was present in small numbers on September 1, 1905. The first to appear in 1910 was on August 26, two, and after that date a few were found every day until we left the island. The birds kept well down among the cedars and the brush of the deciduous woods. A few were found in the button-bushes bordering the swamp. All phases of plumage were noted.

Dendroica magnolia.—Magnolia Warbler.

Present on all visits in fair numbers. In 1910 the first seen was on August 19, the next on the 21st, and every day thereafter until we left. It became decidedly common on August 30 and remained

so to the day of our departure. The distribution over the point was uniform, but the birds, as is their wont, remained well down in the trees and bushes. No birds in full spring dress were seen, but there were all other plumages.

Dendroica cerulea.—Cerulean Warbler.

None were found except in 1910. The first were noted on August 11, three, the next on the 13th, one, and after the 15th, when five were seen, several were recorded every day until September 3, after which date none were found. It is doubtful if there were any breeding birds on the island. Conditions such as the birds breed in in northern Ohio were wanting anywhere on the island, as far as we investigated.

Dendroica pensylvanica.—Chestnut-sided Warbler.

It was present on August 18, 1908. In 1910 the first was seen on August 19, two, and every day afterward several individuals were noted. It was common on only one day, September 1. All plumages were represented. Almost no individuals were seen except in the immediate vicinity of the swamp, where the birds were feeding among the button-bushes.

Dendroica castanea.—Bay-breasted Warbler.

It seems a little strange that none were seen except in 1910. The first recorded was August 11, the next, the 15th, two, the 18th, three, and after that a few every day until September 1, when there was a great influx. It remained common until we left. Until it became common one had to look for the individuals in the deciduous trees near the swamp, but the greater numbers spread over the whole of the point. Most of the individuals were at least tinted with bay on the sides. There were none in full spring dress.

Dendroica striata.—Black-poll Warbler.

None except in 1910. The first was on August 11, two, and there were a few individuals every day after until the 26th, when it became common and remained so until we left, on September 7. The first individuals of this and the last species had to be collected in order to make certain of identification. It was usually possible to approach near enough to make out the yellowish edging of the wing feathers of this, or the bay tint of the sides of the Bay-breasted. We found this species more widely distributed than the last while its numbers were few, but when it became common it was everywhere present, like the last. Only fall plumages were seen.

Dendroica fusca.—Blackburnian Warbler.

It was found on August 29, 1905. The first in 1910 was on August 11, one individual in nearly full plumage, and ever day af-

terward it was present in considerable numbers and in all plumages. It became decidedly common on August 23, and remained common until we left. It was as numerous among the cedars as elsewhere, and worked well down to the limit of vegetation on the point. A few individuals were seen to fly toward Middle Island during the day.

Dendroica virens.—Black-throated Green Warbler.

1910 only. The first was August 20, two; the next, the 21st, one; and on each day afterward, becoming common on the 31st, remaining so to the end. We had reason to suppose that it might be found breeding on this island since it breeds occasionally in the river gorges of northern Ohio, but any evidence of breeding was lacking. There were a few birds in nearly full spring dress, but the most were in the juvenal plumage. None sang.

Dendroica vigorsii.—Pine Warbler.

At least one pair was found breeding, in 1910, upon our arrival The male was singing, and continued to sing until the middle of August. Both parents were seen carrying food into the top of a dense cedar tree. There was a distinct increase on August 24, and the birds were more numerous than at first to the end of our stay.

Dendroica palmarum palmarum.—Palm Warbler.

Found only in 1910. The first August 22, two; the next, the 26th, one; 27th, two; 28th, three; 31st, one; September 1st, one. They remained near the ground at all times, but did not seem to be partial to the vicinity of the swamp. We expected to find more of them.

Dendroica discolor.—Prairie Warbler.

Several were noted on August 18, 1908. The first seen in 1910 was on August 20. The complete records follow. August 20, 1; 27, 5; 28, 2; 30, 2; 31, 1; September 2, 2; 3, 2. It was usually found along the borders of the cedars, or in the smaller cedars which grew in the hollows between the ridges. Some were found at the limit of vegetation on the point. Juvenal plumages prevailed, but one bird was in full spring dress.

Sciurus aurocapillus.—Oven-bird.

One was found on August 18, 1908. In 1910 it was evidently breeding in close proximity to the swamp, in the deciduous woods. From September 1 to the end of our stay it was decidedly common, then ranging well into the cedars, and even roving down upon the brush of the point.

Seiurus noveboracensis noveboracensis.—Water-Thrush.

On September 1, 1905, it came in with other migrating birds in some numbers. In 1910 it was first seen on August 7, one individual was taken, another one on the 10th, another on the 21st, and on and after September 1st it was common, ranging everywhere among the cedars, and down upon the point in the dead brush. "Squeaking" always resulted in bringing these birds within a few feet of one. The opportunities afforded for comparing this with the next species were improved to the extent of learning certain individual traits of difference. The alarm note is easily distinguished when once learned.

Sciurus motacilla.—Louisiana Water-Thrush.

Evidently breeding in 1910, in the vicinity of the swamp. It was seen on September 1, 1905, and on August 18, 1908. It became common on August 28, 1910, and continued so until we left. It remained more numerous in the vicinity of the swamp at all times, but individuals occasionally strayed down to the point along the east beach. This and the last species could sometimes be studied together from my tent door. The slightest movement on my part would send them scurrying away.

Oporornis agilis.—Connecticut Warbler.

Found only in the vegetation along the border of the swamp. The records follow. August 21, 27, 29, September 1 and 2, 1910, one bird on each of the dates given. The birds kept well to cover, and would not flush.

Oporornis philadelphia.—Mourning Warbler.

In contrast to the last species, this bird was found among the cedar trees, either on the ground or among the lower branches. In the middle of the day individuals would sometimes visit the camp and feed unconcernedly as long as we remained quiet. The records follow. One on each of the following dates—August 15, 27, 28, 29, September 2, and two on September 1 and 3, all in 1910.

Geothlypis trichas trichas.—Maryland Yellow-throat.

One of the commonest and most characteristic birds of the region of the swamp. It also ranged down the point to the limit of vegetation, on the days of strong migration. It was found on all visits to the island, and some individuals were singing each day. In 1910 it was common up to August 23, after which only a few were seen each day. Nests were not found, but there is little question that the birds nested on the island.

Icteria virens virens.—Yellow-breasted Chat.

There was every reason to expect this bird to breed regularly on the island, but the only records are August 18, 1908, and Au-

gust 15, September 5-6, 1910. On the last date a bright plumaged bird came to the opening in my tent and remained in an enquiring attitude until I made a movement in the direction of the camera, when he skurried away with a loud chatter.

Wilsonia pusilla pusilla.—Wilson's Warbler.

The first seen was on August 12, four the next day, and a few each day until the 30th, when it became common and remained so to the end. None seen except in 1910. While the numbers remained few the most of the records were made at the swamp, but when the birds became common they spilled over among the cedars, and ranged to the limit of vegetation on the point. They were not at all wary, and permitted close approach.

Wilsonia canadensis.—Canadian Warbler.

It was present on September 1, 1905, and in 1910 the first was noted on August 11, the next on the 13th, and beginning with the 15th there were several recorded each day during our stay. It seemed to be pretty closely confined to the underbrush in the vicinity of the swamp, but occasionally it wandered down the point among the cedars. On September 1, 1910, it was recorded as tolerably common. On that day it was found at the limit of vegetation on the point.

Setophaga ruticilla.—Redstart.

Present and in sufficient numbers to warrant being called decidedly common on all visits to the island. It was evidently breeding in considerable numbers in all of the woodlands visited. In 1910 it was singing during the entire time of our stay.

Dumetella carolinensis.—Catbird.

Found on all visits to the island in small numbers. Pretty closely confined to the region of the swamp, but occasionally found among the cedars and in the shrubery along the west beach. The scarcity of this usually common species was the most notable thing about it.

Toxostoma rufum.—Brown Thrasher.

Present and common on all visits. About the first bird seen when one lands near the limit of vegetation on the point. It was the most numerous in the bushes along the west beach where the wild grapes were abundant, and many individuals were seen eating the grapes. There seemed to be a noticeable increase in numbers when the first migratory movement occurred, about August 12, but no birds were seen to cross to Middle Island, and none even made the start in daylight.

Thryothorus ludovicianus ludovicianus.—Carolina Wren.

Present on all visits, but clearly less numerous in 1910 than at any other visit. The colony noted in 1905 had disappeared with the tangle by the cutting of a road through to the east beach, and the birds had moved to the border of the swamp, and seemed to be scattered somewhat. The evidence seemed to point to a somewhat precarious foothold on the island, possibly due to the fact that this is about the northernmost limit of the species.

Troglodytes aëdon aëdon.—House Wren.

We found a pair near a house north of the swamp, and another pair at the store on the west side of the island. None had appeared in migration at the time of our departure, September 7, 1910. One is at a loss to account for the scarcity of this adaptable wren on the island where nesting places are plentiful and where its natural enemies seem to be few.

Telmatodytes palustris palustris.—Long-billed Marsh Wren.

Apparently there had been only one nesting at the swamp. We found seven or eight individuals there on every visit. One of the birds continued to sing every day during our stay. None were found at the north end of the island, where conditions for nesting were rather more ideal than at the Fishing Point swamp.

Sitta carolinensis carolinensis.—White-breasted Nuthatch.

The only record for the island, strange to say, is the single individual found in the trees at the north border of the Fishing Point swamp on September 1, 1905. If any had been present in 1910 they would certainly have been found by some of the party.

Sitta canadensis.—Red-breasted Nuthatch.

It was present in considerable numbers on September 1, 1905. In 1910 the first one was seen on August 19, and every day thereafter until the 26th a few were recorded. On the 26th it became common and continued so to the end of our stay. It clearly preferred the cedars, where it fed much after the manner of the Black and White Warbler, with which it was associated rather more than with other warblers. On the great migration of September 1 it seemed to swarm all through the cedars, and even into the brush on the point.

Polioptila cærulea cærulea.—Blue-gray Gnatcatcher.

Found only in 1910. Then it was found only in the cedars. The records follow. August 21, 6; 22, 3; 23, 1; 27, 4; 28, 5; 30, 1.

Hylocichla mustelina.—Wood Thrush.

August 31 and September 1, 1910, one each day. These were clearly migrating birds. We made thorough search everywhere for

this thrush without success. Everything, as far as one could judge, was favorable for the nesting of this species on the island.

Hylocichla fuscescens fuscescens.—Veery.

One was recorded on August 18, 1908, and the following records for 1910: August 26, 2; 27, 1; 28, 3; 30, 1; 31, 1; September 1, 6. These were clearly migrating birds. Careful search was made for the thrushes at the beginning of the 1910 work, in the expectation of finding this species nesting in some numbers, but none were found.

Hylocichla aliciæ aliciæ.—Gray-cheeked Thrush.

The only certain record was one taken on September 3, 1910. It seems likely that there must have been a distinct migration, either unnoted by us or else after our departure. The light was often so poor, in the thick growth of the cedars, that it was not possible to make certain of the identification of the swarming thrushes.

Hylocichla ustulata swainsoni.—Olive-backed Thrush.

As recorded elsewhere (antea, p. 16) the Olive-backs became suddenly common on the morning of August 31, 1905, and continued so while we remained on the island. Other visits were too early. In 1910 the first was found on August 29, the next six birds on September 1, and several each day while we remained, but there was no big rush such as occurred in 1905.

Planesticus migratorius migratorius.—Robin.

Present on all visits in considerable numbers. There were more seen inland than on the point, and no migratory movement was noted. Of course the birds nested on the island.

Sialia sialis sialis.—Bluebird.

There were a few records for the point, none of migrating birds. The birds were not uncommon in the interior of the island, where they had evidently nested.

One of the surprising things which this summer and early autumn study on Pelee Island brought out, and which it needed the following summer's work on Point Pelee to corroborate, was the evident southward movement of young birds in advance of the old ones. This was first noticed in the Cowbird and Red-winged Blackbird, and later in both orioles and practically all of the warblers. With the swallows and martins it was not so clearly marked because the old and young plumages are not so readily distinguished. I

am not prepared to say that the companies of young were unaccompanied by old birds, because in the nature of the case it was not possible to carefully scan every bird in flocks of twenty or more. However, in the case of the Cowbirds the early flocks were small and no old birds of either sex were seen with the young, and it is not at all likely that there were in fact, for it is well known that the young of this species do not gather with the adults until relatively late in the summer.

Of course this reversal of what we have come to accept as the normal order of southward migration may be purely local, due to the peculiar topographical conditions of the region, but it seems to me that even this supposition is hardly capable of logical demonstration. The very last Baltimore Orioles to migrate were brilliant males, and the first noted on the island were clearly young birds. If the same thing had not happened on Point Pelee the next summer, when weather conditions were markedly different, and the migrations much less crowded, one might well believe that the conditions in 1910 were local. One has suggested that as the conditions are clearly local on Heligoland, which occupies an unique position, so the unique position of Point Pelee and Pelee Island may also be clearly local. This still further emphasizes the need for coöperative work over a wide area simultaneously. There ought to be competent observers stationed at short intervals from Toronto to Milwaukee, inland as well as along the shore of lake Erie, and several lines from western New York westward as far as Chicago or farther, for both southward and northward migrations. Unless observations are made every day the results are only approximate. They ought to be continuous, but who of us can spend all of his time in outdoor bird study?

THE BROWN THRASHER, (TOXOSTOMA RUFUM) EAST AND WEST.

BY ALTHEA R. SHERMAN.

Various changes in the habits of some North American birds are so well known that only the briefest reference to them is necessary, such changes as have occurred in the choice of nesting places by the Chimney Swift, the Purple Martin, and the Barn Swallow since the advent of the white man on this continent, or more recently changes in the nest site and feeding habits of the Nighthawk, since the introduction of electric lights into our cities. If similar changes are taking place in other species it is of importance to know them, and to ascertain, if possible, the extent of the variation in habits and the causes that have led to these changes

For several years the descriptions of the habits of the Brown Thrasher that have appeared in various ornithological writings, have led me to think, that there may be sectional variations in the behavior and habits of this species, and this impression has been deepened by conversations with several of its observers, whom I met at the recent meetings of the American Ornithologists' Union in Cambridge, Mass. It is hoped that this article will call forth testimony from others, that will show whether or not there do exist real differences in habits, and in case there are such, that thereby they may be placed on record for the benefit of future workers, who may be able to discover the causes of these changes, also in which region it is that the species is divergent from typical Brown Thrasher behavior. In matters of this kind the observations of one person through a series of years cannot cover thoroughly anything other than a small area; and it is possible to reach satisfactory conclusions only after securing testimony from many regarding their small fields of observations.

Since the view point of others with whom I have spoken refers chiefly to eastern Massachusetts birds, and my own observations have been made in northeastern Iowa, it is to

Brown Thrashers in these localities that references are herein made. The variations, believed to exist, relate in main to their choice of habitats, and nesting sites, to the apparent shyness of the species in one locality and its boldness in the other, to which is added some comparison of the relative abundance of the species in the two regions. I am told that it is not a common species in eastern Massachusetts, whereas I class it as such in northeastern Iowa. Its abundance in my neighborhood in 1912 is shown by this: A half dozen pairs located their nests within a quarter of a mile of our house; two pairs of Brown Thrashers nested on our grounds each bringing out two broods, the next pair was about six hundred feet to the northeast, and again to the northeast an eighth of a mile from the third nest was the fourth pair, a quarter of a mile westward of it was the fifth pair, and the same distance to the southwest of their nest was the sixth pair.

In eastern Massachusetts it is said to be a nesting bird of the woodlands, rarely coming close to the homes of men to build its nest. This may in part be due to the pruned, trimmed, and shaven condition of trees, shrubs and lawns. I remember once seeing a pair nesting in a hedge quite near a house at Quaker Hill in eastern New York. It is a bird that seeks a bit of thick and tangled growth in which to build, but in Iowa it finds such places to its taste in the man-planted trees and shrubs that grow upon prairie soil, usually not far from human homes. It is eminently a house-yard bird, although it sometimes nests in patches of bushy second growth that have sprung up on clearings made in the woods.

Its nests in Massachusetts are said to be either on the ground or in bushes from a foot to three feet from the ground. In Iowa I have never found a nest nearer than eighteen inches or two feet of the ground, one of these being in the lower branches of a spruce tree, the other in a brush pile. Another was found built in a brush pile, but farther from the ground, these are the only nests thu-

situated that have been found, but brush piles on prairie land are rare. The next locations nearest the ground are where nests are built in such bushes as gooseberry, lilac, and syringa, when they are from two to three feet above the ground. The highest nest situation found was one in a tame crabapple tree about ten feet up; other trees frequently used are spruce, willow, apple and plum trees in which a majority of the nests are about five feet from the ground, always a trifle too high for women of medium height to look into without a box or chair to stand upon.

It is the behavior of Brown Thrashers as described by New England observers that suggests their greatest variations from their kindred in the Middle West. Description of the actions of the species in the former place seem to emphasize its shy and skulking habits. Whether the Iowa Brown Thrashers are shy or bold may be gathered from the following account of them.

In our household it is one of the best beloved of our birds, even the manner of its arrival in the spring setting it apart from the others, its return to us bringing a leap of the pulse, and a pleasurable thrill surpassing that felt for our other summer companions. Our first arrivals, the Prairie Horned Larks, may be heard on the first mild evenings after the middle of February, as they bid each other "Goodnight," and retire behind their respective clods of earth, but these birds are out of sight in some neighboring field. Undemonstrative Robins and Bluebirds next appear without signs of joy or familiarity, to be followed soon by Blackbirds and Meadowlarks, that sing their pleasure in muffled voices, as if they had caught bad colds as they journeyed northward; Sparrows, Shrikes and several other species succeed them in much the same manner, until the last days of April or the first of May, when in the gray dawn of some morning the wakeful one of the household steals down the stairs to arouse the heavy sleeper exclaiming: "Do you hear that? The Thrashers have come!" and later the neighbors say: "Your Thrashers have come! I heard them singing at break of

day." One is pretty certain to be in sight on the topmost twig of one of the tallest trees pouring forth his full-throated joy. Perhaps one reason for our fondness for him is because he seems so glad to get home, and another, because he makes the yard his summer home in the fullest sense of the word; there having been seasons when the Brown Thrasher has been seen on the place every day from its arrival in the spring until its departure in late September.

Sometimes the male comes first, at other times the pair arrive together, and the merry, rollicking spirit they show suggests the home-coming of children from school; but play and song are of short duration, and the pair settle down to the serious business of the summer season. One is forced to admire the sane, broadminded views taken by the male Brown Thrasher. He believes in and asserts his rights to claim an equal share in the affairs of life. He does his half in the building of the nest, in the incubation of the eggs, in the brooding and feeding of the young, and caring for them after leaving the nest.

If it be true that actions speak louder than words, then our Brown Thrashers are among the loudest speaking of birds. Some of their first plain talk relates to the selection of the nest site. As they slip in and out of a certain crotch in some tree, they have told us plainly on several occasions, that this was their choice of nest site before a single twig was laid; and to convince ourselves that we had judged rightly we have visited the tree, and have been scolded roundly for the intrusion by at least one of the Brown Thrashers. The first nest is usually built before any foliage appears on the trees, consequently the operations of nest-building are as much in evidence as it is possible for them to be. Often the nest is plainly visible until some time after the young leave it. Once there was chosen a dead plum tree that blew over a few days after the young had left the nest. These remarks refer more particularly to nests in our yard, which most frequently are built in plum trees; when placed in other trees or in bushes they are not so conspicuous. A

proof of the openness of the Brown Thrasher's conduct and habits is given by note-books, devoted to detailed records of all observations on the home life of the birds of the door-yard, which show ten pages filled with notes on the life of the Brown Thrasher, to every page recording the doings of that familiar bird, the Robin. This has come about without neglecting the Robin, simply because the Brown Thrasher affords that much more for noting and recording.

So much in sight are the actions of the Brown Thrasher, that they may be read as plainly as an open book, even more easily by some of us, who can translate them without the aid of spectacles, which we must use for reading books. To be sure when the nest has received its first egg one of the pair, crouching low, in an attitude very suggestive of slyness, probably will slip along the top board of the fence for some distance, but he is only acting a part, there being no real skulking in the boldness with which he thus tries to draw the intruder from the neighborhood of his nest treasure.

By the openness of his activities we have come to recognize the incipient signs of nidification, to know when to look for the first egg, the hatching of the young, also when he begins to "whirr" at the cat that his young are ready to leave the nest, and that it is time to imprison his feline enemy, and to ask the neighbors to shut up their cats; we know when to expect him to show his offspring how to pull up the new blades of sweet corn for in this bad trick he does not indulge until the second planting of corn begins to appear above ground; when with a May beetle in his bill for feeding a well-grown young one, he pauses to utter a snatch of song, we know that is is time to watch for the beginning of his second nest. Thus openly he passes his life until the moulting time comes when little is seen of him, but he cannot be called much more of a skulker than the other birds about him.

BROWN THRASHER AT GRINNELL, IOWA, IN THE YEARS 1870 TO 1890.

It is entirely possible that the conditions of which I speak have materially changed, and that bird students at Grinnell will need to say that these interesting birds have shown a capacity for adapting themselves to changing conditions. This would be interesting indeed.

Grinnell lies in a typical rolling prairie region, with natural woods bordering the streams. These woods were of deciduous trees wholly, with thickets of hazel brush on the fringes, wild crabapple and wild plum thickets usually near the fringe but sometimes well within the woods, and with hawthorn and wild gooseberry characteristic of the broader wooded bottomlands where box elder trees predominated. As the country became settled many osage orange hedges and willow wind-breaks sprang up. My serious bird studies did not begin until the era of hedges and wind-breaks was ushered in, and until the hazel brush patches appeared on many previously exclusively prairie hillsides, these patches affording an invironment in which such trees as wild crabapple, hawthorn, wild black cherry, choke cherry, quaking aspen, and finally over-cup oaks appeared.

The Brown Thrasher is associated with my earliest recollections as one of the most familiar birds. I find in the notes of an older brother who began making a collection of eggs about 1872 the statement that the Brown Thrasher (Thrush he has it) nested in the wild crabapple, hawthorn, and wild gooseberry, less commonly in the hazel bushes. No mention is made of the hedges and wind-breaks which were small then. These nests appear to have been placed from two to ten feet from the ground, if old data records are accurate.

In my experience the Brown Thrashers were inseperably connected with Osage orange hedges, and to a lesser degree with the willow wind-breaks. Some nests were still built in the wild crabapple and hawthorn thickets, occasionally in hazel bushes, and one remarkable situation was on the ground in the midst of an old brush pile.

Just at the close of my studies at Grinnell there appeared to be a tendency for the Thrashers to prefer the premises of the houses which had originally been built upon the open prairie, about which thickets of the sort Miss Sherman mentions were growing up, but there was no diminution of the numbers in the hedges.

BROWN THRASHER AT OBERLIN, OHIO.

The species is not at all common as a breeding bird, although it may become common for a day or more during the spring migration. Here the Osage orange hedges seem to be not only the favorite nesting places, but some nests in orchards, a few in the hawthorn thickets and red cedar trees, and occasionally a nest is found in a brush pile. This was once a densely forested region, and therefore it is altogether likely that the Thrashers were originally confined to the river gorges where such thickets as they normally inhabit were to be found.

LYNDS JONES.

THE WILSON BULLETIN

A Quarterly Magazine Devoted to the Study of Birds.
Official Organ of the Wilson Ornithological Club.

Edited by LYNDS JONES.

PUBLISHED BY THE CLUB, AT OBERLIN, OHIO.

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OFFICERS OF THE WILSON ORNITHOLOGICAL CLUB FOR 1912

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Editorial

The report of the Secretary of the Bird Branding Association at the Cambridge meeting of the A. O. U. emphasized the importance of bird branding as a means of determining bird movements. The report clearly showed that the bands worn by the birds in no way imperiled the life of the bird. We of the United States are far behind Europe in this important line of investigation, but if evry person who can do so will undertake to place bands upon birds when opportunity offers, we shall soon be abreast of the Europeans. This is a plea for more banding, and it is addressed to you.

The policy of the editor of this Bulletin is to publish only articles of high standard, field notes of interest and value, and reviews which will attempt to give a resumé of the publication reviewed with constructive rather than destructive criticism. That the editor has failed to realize his high standard goes without saying. It has sometimes been due to a desire to encourage some beginner to better effort, sometimes to good nature or a shrinking from giving pain in a refusal, and many times to a dearth of material such as he ought to have at hand to choose from. He expects to hold more nearly to his ideal, beginning with the 1913 volume. An acceptable

article should contain some contribution to ornithological knowledge. Acceptable notes should contain some information. Personal notices should be of general interest. Prospective contributors who bear these matters in mind before sending contributions, and making sure that the matter to be submitted conforms to them, will save the editor embarrassment and valuable time.

Winter conditions have probably set in, as far as the birds are concerned, the country over. Bird studies ought not to be permitted to lapse because the birds are few and the weather cold. Certain problems connected with bird movements must be worked out during the season of ice and snow. Is there a sudden influx of birds into your region which you cannot account for? Consult the weather records and determine whether there is not something to be learned of the reason from that source. About Thanksgiving time the whole of the northern part of Ohio was covered with snow except a small area in the region of Oberlin. This clear area was well supplied with birds. Problems like this are of no small interest and value in relation to larger problems of distribution. Last winter was especially noted for the large numbers of Robins which passed the winter north of their usual winter sojourn, and thereby many seem to have perished. Large numbers of Bluebirds also seem to have been killed by the severe winter. Is there anything akin to the same conditions the present winter in your locality?

Responses to the Questionaire which was sent out to members in November have come in to a gratifying extent. The negative votes on any of the propositions which the Executive Council offered are so few as to be almost negligible. Thus out of a total vote of 70 but four vote "no" on the first and third propositions, and but one on the second. It therefore seems clear that the changes are authorized. The kind expressions which have accompanied very many of the returned blanks indicate a most wholesome and lively interest in the Club and its official organ. These expressions are a vote of confidence in the function and future of the Club which it is good to know of. The net gain of the plan for the forward movement, as we see it, will be an affiliation of the bird students of the Interior of the county into any organization which will have for its object the working out of problems peculiar to the region. It also contemplates personal acquaintance at the meetings which it is proposed to hold at various convenient points. Hitherto there have been no other opportunities for per-

sonal acquaintance than chance meetings, or attendance upon the meetings of the A. O. U. Few persons find it possible to go so far as it is necessary to go in order to be present at the A. O. U. meetings,, and it does not seem feasible to schedule the meetings in the Interior at the present time. With the working out of the plan for annual meetings in the Interior everybody will be in sufficiently close touch with some meeting place to make it possible for him to attend. The Cooper Club on the Pacific side, the A. O. U. on the Atlantic, and the Wilson Club in the Interior. We believe that this movement will prove of great advantage to the cause of Ornithology everywhere.

———o———

The thirtieth stated congress of the American Ornithologists Union convened in Cambridge on November 11, 1912, in the museum of Mr. William Brewster, at 8:15 in the evening. Routine business was transacted, reports received and members elected. Mr. C. William Beebe of New York City, Edward Howe Forbush of Westboro, Mass., and Louis Agassiz Fuertes of Ithaca, N. Y., were elected Fellows: Frederic H. Kennard, Newton Centre, Mass.; Dr. John C. Phillips, Wenham, Mass.; Miss Althea R. Sherman, National, Iowa; Alexander Wetmore, Washington, D. C.; and Norman A. Wood, Ann Arbor, Mich., were elected Members, and 184 to the class of Associate Members. On Tuesday, Wednesday and Thursday mornings, and Tuesday and Wednesday afternoons public meetings were held in the University Museum, when papers were presented. Nine of the twenty-one papers were illustrated with lantern slides, and two others with specimens. It was especially gratifying to see, in a cage, a real live Heath Hen, from the colony on Marthas Vineyard Island, where the last of that interesting race are now being protected and permitted to increase.

The meetings were largely attended, and a wholesome interest was shown. Cambridge is noted for its large number of bird students, and the attendance of those not members gave clear evidence of the truth of this statement.

Many of the members accepted the invitation of Col. John E. Thayer to visit his estate and museum at Lancaster, Mass., on Friday, and were more than repaid by the splendid entertainment afforded by Col. Thayer. No collection in the country can equal the Thayer collection in the number of rare specimens and books which he has gathered there. This visit was a fitting climax to a most enjoyable and profitable meeting of students of the birds.

General Notes

From Morton Park, Illinois.—On February 19, 1912, I saw a Snowy Owl (*Nyctea nyctea*) flying low, about 7:30 in the morning.

On April 26, 1912, a Mockingbird (*Mimus p. polyglottos*) spent the most of the day in our back yard.

These are rare records for this place.

We have noticed a scarcity of Bluebirds in the region this year.

Orpheus M. Schantz.

The Case of the Bluebirds.—While in northern Ohio the Bluebirds were clearly fewer in number than in previous years during the earlier part of the spring and summer, from Oberlin to Toledo they were in as large numbers as in any year during September and early October. The fact that a considerable majority of the birds seen were in the juvenal plumage indicates that the relatively few old birds which did return to their regular breeding places must have been more than usually successful in rearing young. On the writer's farm the two pairs out of the five of the previous year which returned successfully reared two broods of five each. As late as the middle of September these 24 birds were keeping together and feeding in the oat stubble and the corn fields and orchard, near where they made their nests. Lynds Jones.

Some Cedar Point-Huron, Ohio, Notes.—On October 21, 1912, the writer and Mr. H. G. Morse of Huron, spent the day along the lake shore from Huron west on the Cedar Point sand spit some three miles. Of the list of 36 species noted the most interesting were the single Palm Warbler, the single Hermit Thrush, the 6 Red-backed Sandpipers, 2 Sanderling, 8 Black-bellied Plovers, 1 Spotted Sandpiper, the singing Meadowlarks and Bluebirds and Rusty Blackbirds, and the great numbers of Horned Grebes in the lake, all in winter plumage. Mr. Morse writes me that the Black-bellied Plovers and the Red-backed Sandpipers remained in the vicinity of where we saw them for a week. He also writes that a Surf Scoter (*Oidemia perspicillata*) was shot at Huron on October 26, a Barn Owl (*Aluco pratincola*) on November 15, and a Snowy Owl was seen near Rye Beach on November 10.

Lynds Jones.

NOTES FROM THE TRI-RESERVOIR REGION.

From October 1st to the 10th fully 17 Wood Ducks (Aix sponsa) were killed on the Grand Reservoir, showing that this duck is on the increase. One of these, a fine male in full nuptial plumage, killed October 11th, was sent me and is now in my collection.

On October 15th and 16th six females of the White-winged Scoter (Oidemia deglandi) were shot on the Grand Reservoir, but unfortunately I could not get one for my collection. They are considered good table ducks by local hunters who know them by the misnomer. "Muscovy Ducks." As this name may be applied elsewhere it may pay ornithologists of the Middle West to seek for them among sportsmen by that name.

On November 19th I heard of a giant hawk, spreading 7 feet one inch, being shot two miles from town. I drove out to the place on the next morning and was presented with a fine female Bald Eagle (Haliaetus leucocephalus) approximately 2½ years old. It had been killed on the wing by two loads of No. 6 shot in the early dawn, being mistaken for a hawk.

In the year 1911 a farmer and fisherman found a duck nesting in the hollow and shallow top of an old stub in the Grand Reservoir, about 15 feet from the water. He stated it to be a "Black Mallard," and upon placing my series of about 200 different ducks before him he invariably picked the Black Duck (Anas rubripes) as the bird that had nested there in the spring of 1911. As the Black Duck has nested here in former years, there would be nothing out of the way about it still doing so occasionally, but the nesting site is certainly unusual. The man's veracity cannot be doubted and his familiarity with the species of ducks in this neighborhood serve to increase the probability of the record. For several years I have been of the opinion that the Black Rail would be found here, and several times when at the Reservoir I was certain I had seen this species. During this summer a Mr. McGill saw the Black Rail (Porzana jamaicensis) at the Grand Reservoir and the reason he did not shoot it was that being too close to the bird and having only heavy shot, he would have torn it to shreds. Now, Mr. Mac Gill is the man who furnished Mr. Dury of Cincinnati with one of his specimens of this species taken in Ohio and being himself a good entomologist, ornithologist, and taxidermist, certainly could not be mistaken in his identification of the species. The future will no doubt show this species to be a rare breeder at the Grand Reservoir.

On September 27th I saw a pair of Caspian Terns (Sterna caspia) at the Grand Reservoir.

New Bremen, Ohio. W. F. HENNINGER.

NOTES FROM SOUTH DAKOTA.

May 14, 1911, I was around a partly dried up slough that is located about eight miles southwest of Sioux Falls, and while there had the good fortune to run across two Stilt Sandpipers. I approached to within a couple of rods of them and with the aid of eight-power binoculars I fully identified them. They were feeding together in the water among a flock of Wilson Phalaropes, Lesser Yellow-legs, and others.

A June Bird Day Near Sioux Falls, South Dakota.—June 11, at 7 a. m., started on a bird hunt, which lasted until 8 p. m. Took in the woods along Big Sioux river and Skunk creek—fields, prairies, meadows and a couple of small, nearly dried up sloughs. The sky was overcast most of the time and a heavy wind from the northwest was blowing steady all day long. The result:

1. Black Tern.—Common around the sloughs.
2. Hooded Merganser.—Fourteen seen on the river.
3. Mallard.—Three in the sloughs.
4. Blue-winged Teal.—Common in the sloughs.
5. Shoveller.—Common in the sloughs.
6. Lesser Scaup Duck.—Common in the sloughs.
7. Bittern.—Common.
8. Green Heron.—Common along Skunk creek.
9. Black-crowned Night Heron.—Common.
10. Coot.—Only two or three.
11. Wilson Phalarope.—Common about the sloughs.
12. Pectoral Sandpiper.—Common about the sloughs.
13. Baird's Sandpiper.—One with the Pectorals.
14. Lesser Yellow-legs.—Only two.
15. Upland Plover.—Common on the prairies.
16. Killdeer.—Common around the sloughs.
17. Spotted Sandpiper.—Common along the river.
18. Bob-white.—Two.
19. Prairie Chicken.—Two.
20. Mourning Dove.—Common.
21. Marsh Hawk.—One.
22. Yellow-billed Cuckoo.—Common along the river.
23. Black-billed Cuckoo.—Not as common as the Yellow-billed.
24. Belted Kingfisher.
25. Hairy Woodpecker.—One.
26. Downy Woodpecker.—One.
27. Northern Flicker.—Common.
28. Chimney Swift.—Common in the city.
29. Kingbird.—Common.

30. Arkansas Kingbird.—Common.
31. Traill's Flycatcher.—Only one.
32. Prairie Horned Lark.—But few seen.
33. Blue Jay.—Very few.
34. Crow.—Common.
35. Bobolink.—Common on the prairie.
36. Cowbird.—Common.
37. Yellow-headed Blackbird.—Very common around the sloughs.
38. Red-winged Blackbird.—Common.
39. Western Meadowlark.—Common.
40. Baltimore Oriole.—One.
41. Bronzed Grackle.—Common.
42. Grasshopper Sparrow.—Very few.
43. Field Sparrow.—Heard.
44. Song Sparrow.—Common.
45. Towhee.—Heard.
46. Rose-breasted Grosbeak.—Common.
47. Dickcissel.—Very common.
48. Lark Bunting.—Only one.
49. Purple Martin.—Common in the city.
50. Barn Swallow.—Common.
52. Rough-winged Swallow.—Fairly common along the river.
53. White-rumped Shrike.—Fairly common.
54. Red-eyed Vireo.—Heard.
55. Warbling Vireo.—Heard.
56. Yellow Warbler.—Common.
57. Maryland Yellow-throat.—Common.
58. Catbird.—Very common.
59. Brown Thrasher.—Common.
60. House Wren.—Common.
61. Chickadee.—Only one.
62. Wood Thrush.—Heard.
63. Wilson Thrush.—Heard.
64. Robin.—Common.
65. Bluebird.—Common.

Of course some of the other common birds like the Red-headed Woodpecker and Goldfinch were nowhere to be seen.

ADRIAN LARSON.

Publications Reviewed

A History of the Game Birds, Wild-Fowl and Shore Birds of Massachusetts and adjacent states including those used for food which have disappeared since the settlement of the country, and those which are now hunted for food or sport, with observations on their former abundance and recent decrease in numbers; also the means for conserving those still in existence. By Edward Howe Forbush, State Ornithologist of Massachusetts. Illustrated with Drawings by W. I. Beechcroft and the Author, and Photographs by Herbert K. Job and Others. Issued by the Massachusetts State Board of Agriculture. By Authority of the Legislature, 1912.

"This volume is intended to fill a place heretofore unfulfilled, in at least two respects, by any American work. The former abundance and later decrease of the migratory game birds of eastern North America have been studied and narrated at length for the first time, and the histories of the food species of New England which have been exterminated since the settlement of the country have been brought together. This has been done with a purpose.

"Whenever legislation for the protection of shore birds or wild-fowl has been attempted in the Maritime States of the Atlantic seaboard, certain interested individuals have come forward to oppose it, with the plea that these birds are not decreasing in numbers, but, instead, are increasing, and that they need no further protection. Some admit that certain species are decreasing, but argue that shooting is not responsible for this condition.

"The object of the investigation on which this volume is based was to secure information from historical and ornithological works, and from ornithologists, sportsmen and gunners, regarding the increase or decrease of the birds which are hunted for food or sport.

"The report is published with the intention, first, to show the former abundance of resident and migratory game birds in America and their subsequent decrease in numbers; second, to furnish gunners and others with the means of identifying game birds, that the people may recognize the different species and thus fit themselves to observe protective laws; and third, to demonstrate how the birds may be conserved.

"In the introduction an attempt is made to narrate briefly the history of the decrease of resident and migratory game birds along the Atlantic seaboard. Part I continues this history, but particularizes and localizes by taking up separately each individual species that has been recorded from Massachusetts and nearby states. Part II groups together the histories of the species utilized as

food which have disappeared from New England since the settlement of the country, and exhibits the causes that brought about the destruction of these species. Part III analyzes the causes of the decrease of the species of game birds, wild-fowl and shore birds that are still extant, and indicates how they may be conserved and how depleted areas may be restocked with certain species."

There are 36 plates, exclusive of the colored frontispiece of the discussion as food, and the gun makers who wish a market for their wares, but he warns them that at the present rate of decrease it will be only a short time until there will be none of these birds to furnish sport or food. The conservation of these birds can be realized by the enforcement of, or better, the observance of laws, state or federal, making closed seasons, especially in spring, closed seasons over a number of years for such species as are now nearly extinct, reservations where the birds may breed unmolested, and the artificial propagation of large numbers. It is a most timely book which has large value the country over, since a great deal of data is given not confined to New England. A great deal of information is here brought together for the first time. L. J.

The Experimental Method of Testing the Efficiency of Warning and Cryptic Coloration in Protecting Animals from their Enemies. By W. L. McAtee. From the Proceedings of The Academy of Natural Sciences of Philadelphia, June, 1912. Issued September 6, 1912.

The thoroughness with which Mr. McAtee goes into the subject before reaching his conclusions may best be shown by transcribing the table of contents of this paper.

Introduction. Experiments with Invertebrates (chiefly Insects). Experiments with Vertebrates: Fishes; Amphibia, in Countries other than the United States, In the United States — Toads, Frogs, Salamanders. Reptiles: Experiments in Asia, Experiments in Upland Plover, 82 cuts and 26 figures in the text. There are 622 pages including a list of contributions and an excellent index.

The species mentioned as having become extinct are Great Auk, Labrador Duck, Eskimo Curlew, and Passenger Pigeon. The extirpated species given are Trumpeter Swan, Whooping Crane, Sandhill Crane, and Wild Turkey. These furnish concrete illustrations of what may be expected with many of our game birds unless something is done to check their steady decrease.

In the third part of the book Mr. Forbush recognizes and discusses at length the legitimate claims of the sportsman, the pothunter, and the public who wish to continue to use the birds under

Europe, Experiments in America. Mammals. Mixed Groups of Animals. Birds: Experiments in Europe, Experiments in Africa, Experiments in Asia, Experiments in America, Experiments by Judd and Beal. Summary. This whole inquiry covers 83 pages.

Mr. McAtee calls attention to the fact that "The selectionist theories regarding the significance and the causes of production of the so-called warning, mimicking, and cryptic coloration long preceded a knowledge of the food preferences of insectivorous animals sufficient to warrant such speculation," and that knowledge of the food preferences "is still almost entirely lacking for many parts of the world — including the Amazon valley, which is the home of the brightly colored Heliconiid butterflies and their mimics that suggested the mimicry theory to H. W. Bates."

After a careful examination of the experiments which have been performed and reported in literature the author is led to say, "from the writer's point of view, three main conclusions regarding the experimental tests of the efficiency of protective adaptations against natural enemies are unavoidable: (1) The experiments are very inconsistent; (2) they have been misinterpreted; and (3) they are not trustworthy guides to behavior under natural conditions. Having no certain value in themselves, they must be checked up with definite knowledge of the natural food habits. This information is obtained by collecting animals with freshly captured prey and by examination of pellets, castings, and the contents of stomachs or other portions of the alimentary canal. There is no possibility of going back of such evidence on the choice of food, nor is there any need of so doing.

"Since this evidence is sufficient in itself, and since experimental data must be supported by it to be worthy of any consideration, why perform the experiments? The same time expended in collecting trustworthy data regarding the natural food habits of animals would bring much greater returns, and the result would be truth, not imaginative inferences from abnormal behavior." L. J.

Food of Some Well-known Birds of Forest, Farm, and Garden. By F. E. L. Beal and W. L. McAtee, Biological Survey, U. S. Department of Agriculture, Farmers' Bulletin No. 506. Issued September 25, 1912.

This Bulletin follows Bulletin No. 54, treating of birds that are of equal importance with those treated in the former Bulletin, but the species are less widely distributed, or decidedly local in distribution. They are: Three-toed Woodpeckers, California Woodpecker, Lewis Woodpecker, Red-bellied Woodpecker, Sapsuckers, Hummingbirds, Arkansas Kingbird, Western Yellow-bellied Fly-

catcher, Horned Lark, Chipping Sparrow, Junco or Snowbird, White-crowned Sparrow, Southern Butcher Bird, Audubon Warbler, Ruby-crowned Kinglet.

We note that ten of the sixteen figures are from the pencil of Robert J. Sim. They are of unusual excellence. Too much cannot be said in commendation of the work which this paper represents. The data gathered in these investigations will surely furnish incontrovertable data for inquiries such as Mr. MaAtee has begun in a paper reviewed elsewhere in this number. L. J.

On the Collection of Zoölogical Specimens for the Victoria Memorial Museum, Zoölogy. By P. A. Taverner. Canada, Department of Mines, Geological Survey. No. 1234, 1912.

In this little pocket pamphlet of 56 pages Mr. Taverner has not only condensed a complete compendium for collectors of all sorts of zoölogical material with which a great museum should be concerned, but he also gives valuable directions for shipping specimens, methods of collecting, ammunition, other equipment, conduct in the field, and all that goes with the preservation of specimens. In short, it is such a pamphlet as one would find of great value who goes out into the woods and fields for any purpose, and should stimulate those not otherwise inclined to gather specimens to do so. Mr. Taverner's plea to the individual for assistance in building up the Victoria Memorial Museum ought to stir every loyal Canadian to such action as will result in the building of a museum worthy of the wealth and intelligence of Canada. L. J.

Food of Our More Important Flycatchers. By F. E. L. Beal, Assistant, Biological Survey, U. S. Department of Agriculture, Biological Survey — Bulletin No. 44. Issued September 19, 1912.

The species here treated are the Kingbird, Arkansas Kingbird, Crested Flycatcher, Phœbe, and Black Phœbe. Each is illustrated by the inimitable colored plates of Louis Agassiz Fuertes. The Bulletin covers sixty-six and a half pages. The food of each of the five species is treated in great detail. It is another of the many invaluable studies of the food of our birds. L. J.

Pocket List of Birds of Eastern Massachusetts. Albert P. Morse, Curator of National History, Peabody Museum, Salem, Mass. Published by the Peabody Academy of Science, Salem, Mass. 1912.

"The purpose of this little work is to provide the bird-student in eastern Massachusetts with a handy pocket reminder of 'what, when, and where' to seek." . . . . "The List contains 390 species and subspecies. Of these three are probably or certainly extinct; sev-

eral more are extirpated; three are believed to be hybrids; five or six are known or believed to have been introduced; of about 375 remaining, 165 are popularly distinguished as water-birds and 210 are land-birds. Of these, 29 water-birds and 37 land-birds are accidental wanderers from various points of the compass, chiefly from the West and South; 30 more are of decided rarity, leaving about 280 species of somewhat regular occurrence, of which about three-sevenths are water-birds, a relatively large proportion due to the coastwise situation."

These 390 species and subspecies are arranged in systematic sequence following the A. O. U. Check-List implicitly, but adding a number of local or vernacular names. No attempt is made to give descriptions. Relative abundance and status, as well as the times of occurrence are given, and the place of occurrence is stated in the case of each species. The right hand page is left blank for annotations, so that the actual number of printed pages covered by the List is 38. An index covers about 8 pages, and the List closes with about six double pages of "Seasonal Charts," indicating by lines and dashes the actual times of the year when each species is present. This chart is also arranged systematically as to the names of the birds. While there would be some obvious advantages in a chronological arrangement of the species, in the order of their spring migrations, the disadvantage of not knowing where to look for any given species would be great. The print and paper are excellent. The List should prove of great value to students of birds in the region which it covers. L. J.

Birds in Relation to a Grasshopper Outbreak in California. By Harold C. Bryant. University of California Publications in Zoölogy, Vol. 11, No. 1, pp. 1-20. November 1, 1912.

"An investigation into the relation of birds to a grasshopper outbreak was carried on at Los Banos, Merced County, California, July 11 to 17, 1912.

"Grasshoppers were found to be causing considerable damage to alfalfa and vegetables. An infestation of about fifteen grasshoppers to the square yard appeared to be necessary to cause noticeable damage. In the infested areas the grasshoppers were computed to number from twenty to thirty to the square yard." Observations and the examination of stomach contents showed the following species of birds to be feeding upon grasshoppers: *Agelaius phœniceus californicus, Sturnella neglecta, Euphagus cyanocephalus, Icterus bullocki, Tyrannus verticalis, Lanius ludovicianus gambeli, Passer domesticus, Speotyo cumicularia hypogœa, Oxyechus vociferus, Butorides virescens anthonyi, Sayoris nigricans, Otocoris*

alpestris actia, Agelaius tricolor, Petrochelidon lunifrons lunifrons.

"The efficiency of the different species, when determined by destructive capacity, showed the burrowing owl to be the ablest destroyer; when determined by the numbers of individual birds in the territory, showed blackbirds, meadowlarks, killdeers, orioles, and shrikes to take positions in the order named.

"Birds cannot be considered a dependable means of control of all grasshopper epidemics, but can be inferred to be efficient in the prevention of many" and "can be depended on to act as defenders and protectors of crops because of their warfare against grasshoppers, and their value in this regard can be estimated in dollars and cents."

"Birds flocked to areas where grasshoppers were abundant" and "changed their feeding habits and fed on grasshoppers, the insect most available in this case."

Mr. Bryant concludes that while birds fail to check an insect outbreak they do constantly act as a regulative agent under ordinary circumstances when no artificial means of control are employed; and that some species which may do some damage to crops at ordinary times will be of great service during an insect epidemic, and thus offset the damage at other times. We welcome papers of this sort, dealing with concrete cases. Such intensive studies should be pressed in every state. L. J.

A Systematic List of the Birds of California. By Joseph Grinnell. Cooper Ornithological Club, Pacific Coast Avifauna Number 8. Contributions from the Museum of Vertebrate Zoölogy of the University of California. Hollywood, California. Published by the Club, August 30, 1912. Edited by Joseph Grinnell and Harry S. Swarth at the Museum of Vertebrate Zoölogy, University of California.

The writer does not feel competent to pass judgment upon the scheme of classification here given for the birds which occur in the state of California. The task of constructing a classification which represents more nearly what practically all ornithologists the world over consider a more nearly natural arrangement than that adopted and adhered to by the A. O. U., and which must necessarily differ from it, is a somewhat thankless one. Such a classification cannot be adopted and consistently used in one part of the country without throwing into confusion hardly less than the confusion which prevailed before the present A. O. U. arrangement was adopted for North America, the work of this continent. If, as we believe, this scheme of classification is put forward as a contribution to the subject of classification and will serve to accelerate the work of the A. O. U. committee upon classification,

so that ere long we may expect a revised Check-List fashioned upon modern lines, we heartily welcome it, and extend our thanks to the authors for it. L. J.

Birds of the Pacific Slope of Southern California. By George Willett. Cooper Ornithological Club. Pacific Coast Avifauna Number 7. Hollywood, California. Published by the Club, July 25, 1912.

The territory which this list covers "comprises all of Santa Barbara and Ventura counties, Los Angeles County south and west from the Liebre Mountains, Sierra Pelona and Sierra San Gabriel, San Bernardino County south and west from Sierra Madre and San Bernardino ranges, all of Orange County, Riverside County west from the San Jacinto range, and San Diego County west from the Volcan and Cuyamaca ranges; also the eight islands of the Santa Barbara group, namely San Miguel, Santa Rosa, Santa Cruz, Anacapa, Santa Barbara, San Nicolas, Santa Catalina, and San Clemente. In some cases I have deemed it advisable to refer to records outside the limits as described above in order to show certain connecting features in distribution or migration."

The order followed is that of the 1910 A. O. U. Check-List, except in a few instances where the distribution of certain species do not seem to coincide with the Check-List. The conservatism of the list as here presented is commendable. At that the main list includes 377 names, with an added hypothetical list of 18. The list is concerned with relative abundance, distribution both altitudinal and latitudinal, place and time of breeding of breeding birds, times of migration, and such citations of literature as seem pertinent. Occasional notes of other character add interest to the list. Paper, typography and workmanship are fully equal to the high standard which the Cooper Club is so noted for. The paper is a welcome addition to faunal literature, as bringing this region down to date. L. J.

The Present and Future Status of the California Valley Quail. By Harold C. Bryant, Fellow in Applied Zoölogy on the Fish and Game Commission Foundation in the University of California. With Map and Diagram. Reprinted from The Condor, Vol. XIV, July, 1912, pp. 131-142.

The author concludes, after a careful examination of facts, that the decrease of these birds in some sections calls for conservative action lest in such sections the species be exterminated. In sections where there has been no change and where there has been an increase he recommends that game laws which will operate to maintain a proper balance be enacted. It is no kindness to wild ani-

mals to permit them to increase to the point where crowding must inevitably result in a decreased efficiency in meeting the demands of life, for in such case there is real danger to the species.

L. J.

A Revision of the Subspecies of the Green Heron (*Butorides virescens* [Linnaeus]). By Harry C. Oberholser, Assistant Ornithologist, Biological Survey, Department of Agriculture. No. 1916. —From the Proceedings of the United States National Museum. Vol. 42, pages 529-577. Published August 29, 1912. Washington.

To the six previously existing forms of this heron there are here added twelve subspecies, all south of the United States. In addition to the study of this species, and as a necessary preliminary to it, Mr. Oberholser found it necessary to determine the exact status of *Butorides brunescens* (Lembeye), which he concludes is a good species, occurring in Cuba with the form which inhabits Cuba, here newly named *Butorides virescens cubanus*. The evident thoroughness of this revision inspires the confidence that the splitting of this species of heron into subspecies is settled for years to come. L. J.

THE ORNITHOLOGICAL JOURNALS.

The Ontario Natural Science Bulletin, No. 7, 1912. Journal of the Wellington Field Naturalists' Club, Guelph, Ontario.

The bird notes in this excellent annual are: The Bartramian Sandpiper Breeds near Guelph. Herbert Groh; The Yellow-breasted Chat at Alma, Ont., John Allan, Jr.; Notes on the Winter Birds at Guelph, Ontario, in 1911-12, E. W. Calvert; A. Late Migration of the Evening Grosbeak in Ontario, A. B. Klugh; A Chipping Sparrow's Nest on the Ground, J. W. Noble; A Large Colony of Bank Swallows' Nests, J. W. Noble; Spring Bird Notes from Oakville, Ontario, E. W. Calvert. L. J.

THE AUK. October, 1912. Vol. XXIX, No. 4.

The Freezing of Cayuga Lake in Its Relation to Bird Life. By Alvin R. Cahn, four plates.

The Niagara Swan Trap. By J. H. Fleming.

Methods of Estimating the Contents of Bird Stomachs. By W. L. McAtee.

The Breeding Birds of Southern Center County, Pennsylvania. By Richard C. Harlow.

Some observations on the Life-History of the Red-breasted Merganser, *Mergus serrator*, Linn. By R. M. Strong. Three plates.

Remarks on the Case of Roosevelt vs. Thayer, with a few Independent Suggestions on the Concealing Coloration Question. By Francis H. Allen.

Birds Observed in Montgomery County, Virginia. By Ellison A. Smythe, Jr. One plate.

BIRD-LORE. September-October, 1912. Vol. XIV, No. 5.

Frontispiece in color—Towhee, Arctic Towhee. By Louis Agassiz Fuertes.

Phœbe vs. Catbird; A Study in Adaptability. By A. A. Allen.

Florida Bob-whites. Illustration. By George Shiras, 3rd.

The Story of Peter. Illustrated by G. A. Bailey. By Fanny Hardy Eckstorm.

Two Problems in Identification. Illustrated.

The Migration of North American Sparrows. By W. W. Cooke.

Notes on the Plumages of North American Sparrows. Illustrated by Louis Agassiz Fuertes. By Frank M. Chapman.

THE CONDOR. September-October, 1912. Vol. XIV, No. 5.

The Discovery of the Nest and Eggs of the California Pine Grosbeak (with 17 photos by Oluf J. Heinemann and the author). By Milton S. Ray.

Notes from Todos Santos Islands. By A. B. Howell.

Some birds of the Saw-tooth Mountains, Idaho. By Stanley G. Jewett.

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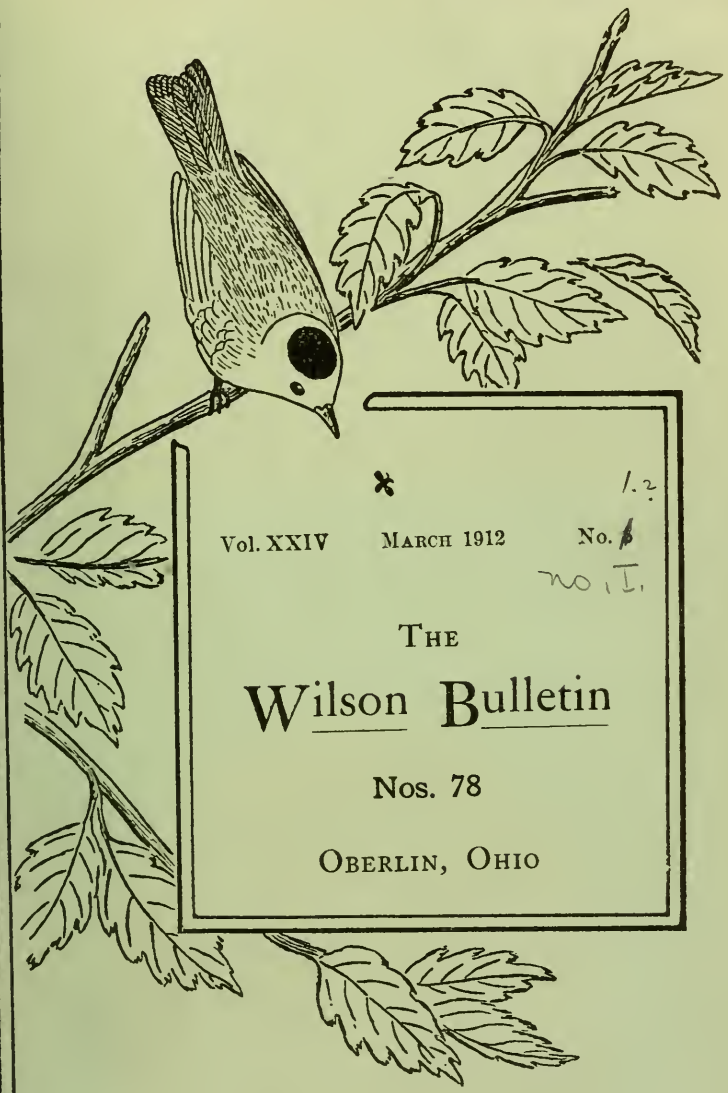

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OBERLIN, OHIO

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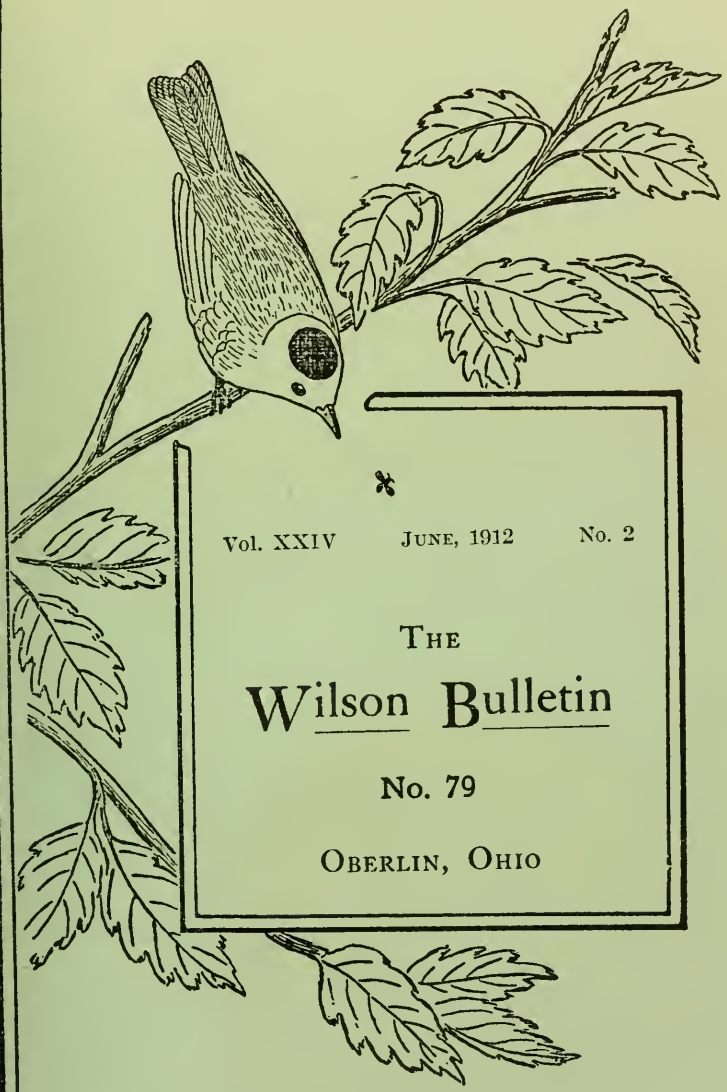

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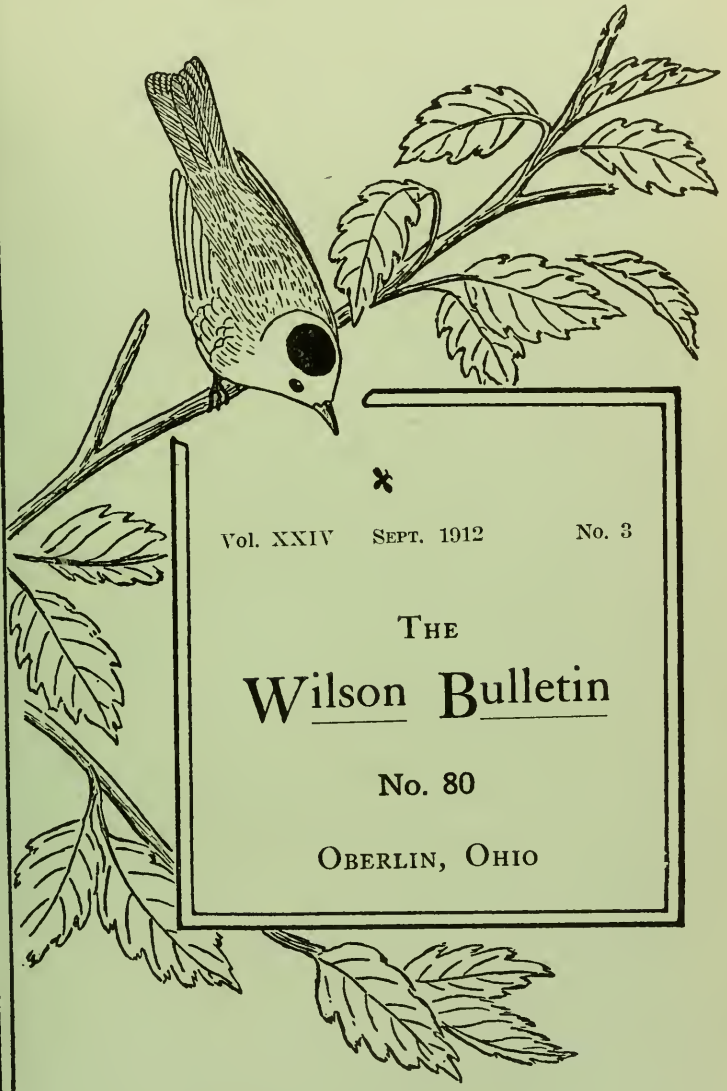

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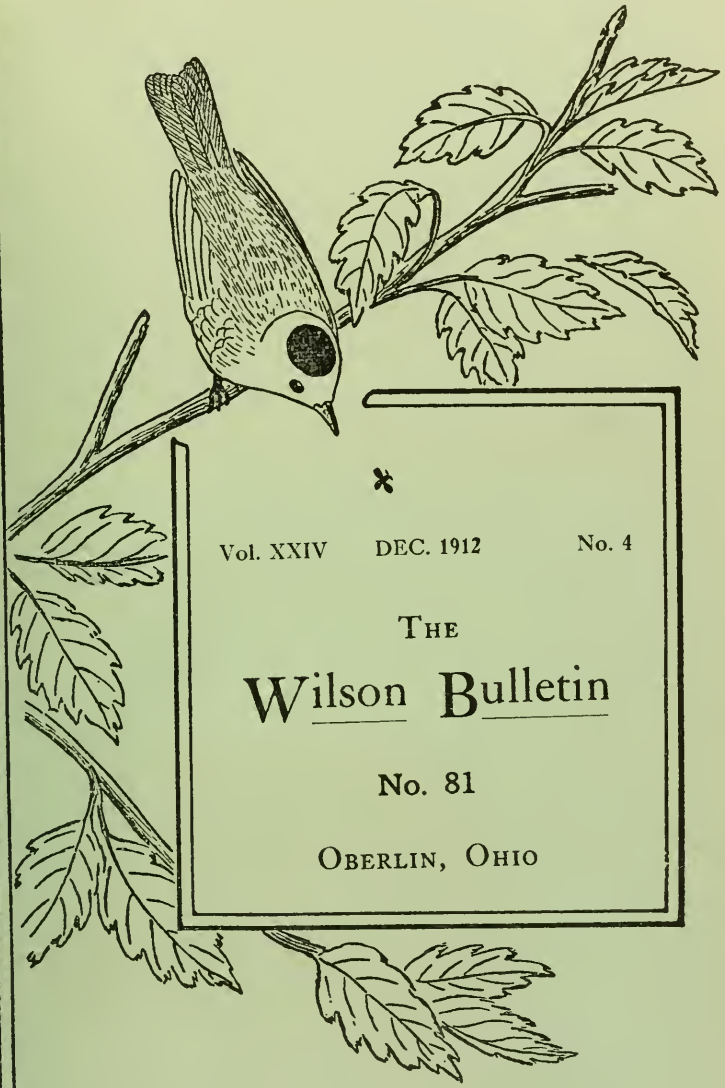

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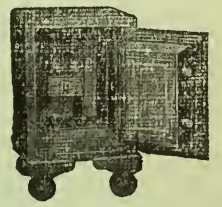

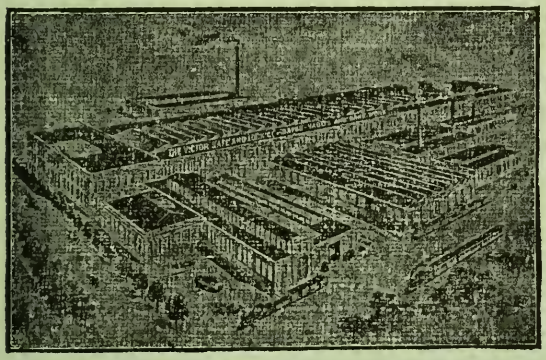

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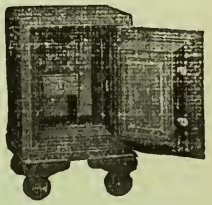

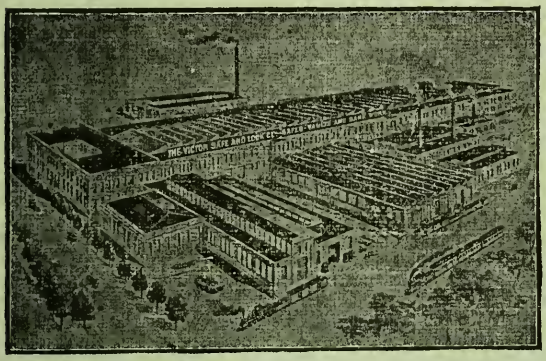

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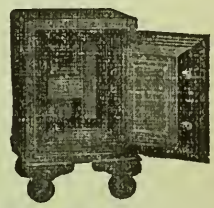

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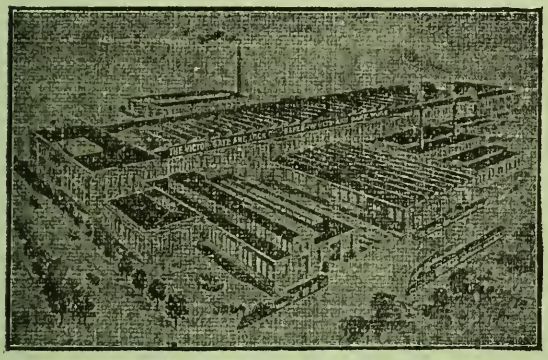

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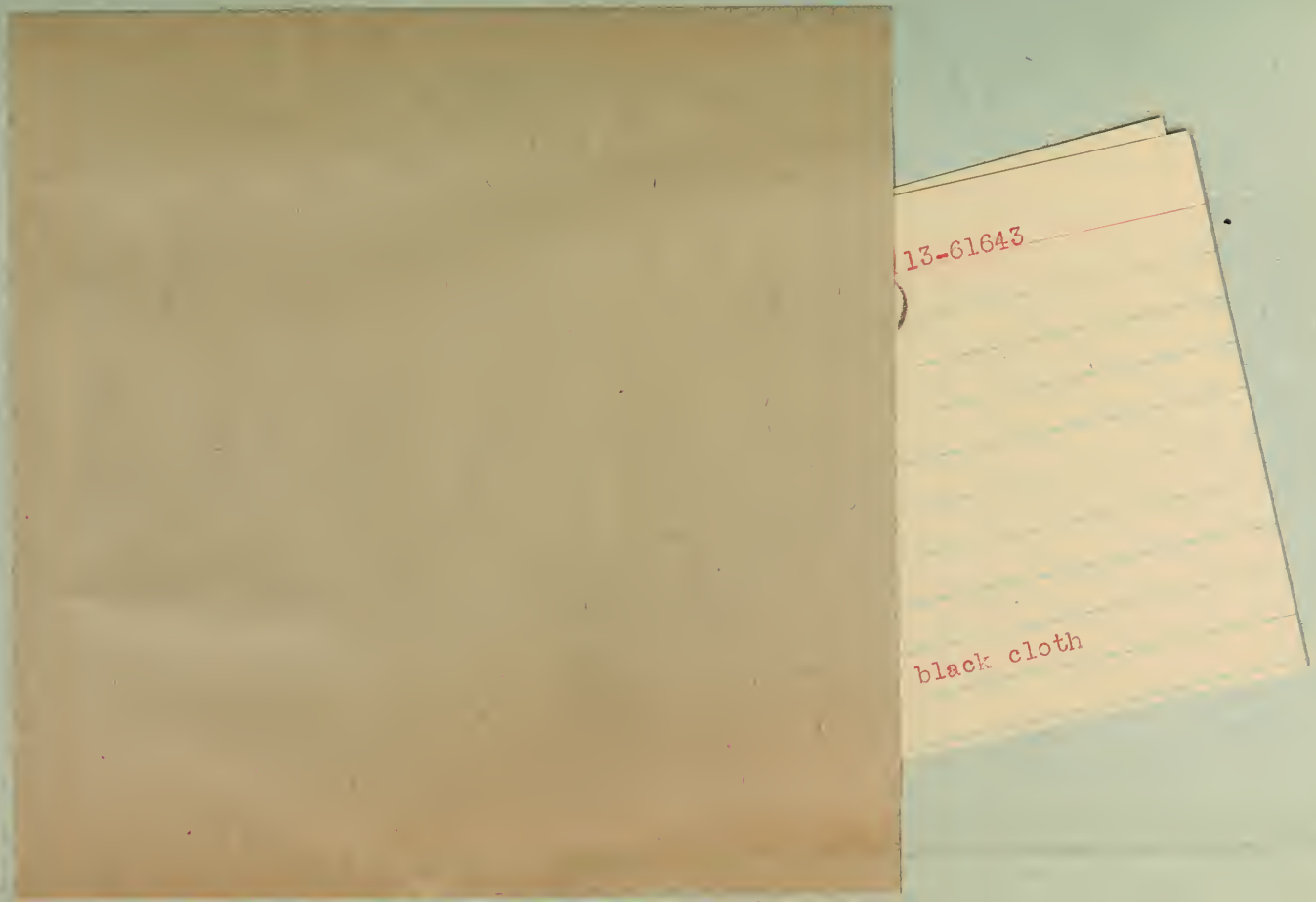
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